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# The American Statistician

*A Publication of the American Statistical Association*

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**The American Statistician**

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The Editorial Committee welcomes the submission of manuscripts for possible publication. Two copies, double-spaced, should be sent to the Editor, Almarin Phillips, E-140 Dietrich Hall, University of Pennsylvania, Philadelphia 4.

News and notes should be sent to Dana Barbour, News Editor, American Statistical Association, 1108 16th Street, N.W., Washington 6, D. C.

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## NOMINATIONS OF ASA OFFICERS

The Committee on Elections, consisting of Gertrude M. Cox, Chairman, Walter Hoadley, Jr., and Stuart A. Rice, has nominated the following persons as candidates for office:

*President-Elect*

WILLIAM R. LEONARD, Statistical Office of the United Nations

*Vice-President* (1956–58)

(One to be elected)

FRANK GARFIELD, Board of Governors of the Federal Reserve System
MARTIN GAINSBRUGH, National Industrial Conference Board

*Directors* (1956–58)

(Two to be elected)

ARNOLD KING, National Analysts, Inc.
LESTER FRANKEL, Alfred Politz Research, Inc.
W. J. YOUDEN, National Bureau of Standards
WILLIAM SPURR, University of California

*Representative-at-Large* (1956–57)

(One to be elected)

VIRGINIA HOLRAN, Institute of Life Insurance
GUENTHER BAUMGART, American Home Laundry Manufacturers Assn.

In accordance with the Constitution, additional nominations may be made by petition signed by at least twenty-five members and submitted to the National Office of the Association. Ballots will be mailed on or before November 15. These ballots will contain biographical material on each of the candidates.

# NEWS

Riley Appointed Interim Treasurer—Exhibits at Annual Meeting—Conferences—Grants and Fellowships—Publications

## Donald C. Riley Interim Treasurer

Donald C. Riley, Deputy Chief of the Office of Statistical Standards, Bureau of the Budget, and a member of the ASA Board of Directors and Finance Committee, has been designated as Interim Treasurer of the Association. The appointment was made by President Ralph J. Watkins and was unanimously confirmed by a mail vote of the Council. A permanent Secretary-Treasurer to take the place of Samuel Weiss, who died on July 23rd, will be elected at the next meeting of the Board and Council.

## Exhibits Feature at Annual Meeting

Exhibits will play an important part at the annual meeting of the American Statistical Association, which will be held in the Hotel Biltmore in New York City, December 27–30, 1955.

The general theme of the exposition will be "New Methods in Preparing Statistics". This exhibit is designed to show the members of the American Statistical Association and allied professional associations the latest types of office equipment, reproduction processes, office supplies, and visual aids. Commercial firms are afforded an opportunity to display equipment, processes, methods, and items of supply, as well as new developments of products that would be of interest to the Association's membership. In addition to the booths available for exhibitors, there will also be an exhibit library where publishers are invited to display books and other printed material.

Detailed information may be obtained from Mr. Warren L. Schriver, Exhibit Manager, American Statistical Association, 1757 K Street, N.W., Washington 6, D. C.

## Handbook on World Weights and Measures

Detailed information on the systems and units of measure currently in use in each country of the world is contained in the new handbook for statisticians just published by the United Nations and the Food and Agriculture Organization under the title, "World Weights and Measures". The main purpose of the volume, which was prepared by the U. N. Statistical Office in collaboration with the FAO, is to provide to statisticians working in the field of international economics factors for converting magnitudes, quantities and values from the units in which they are stated to corresponding units in any other system. Sections are devoted to international systems and units of weight and measure; the systems of weight, measure and currency of each country; unit weights of selected commodities; and national currencies, with equivalents in U. S. Currency.

"World Weights and Measures" may be obtained at the UN Bookshop or from the Columbia University Press, 2960 Broadway, New York City. The price is $2.00 per copy.

## Proceedings of the 1955 Conference on Business Statistics at Wharton School

The 1955 Conference on Business Statistics, sponsored jointly by the Business and Economic Statistics Section of the American Statistical Association and the Wharton School of Finance and Commerce, was held on June 9th and 10th at the Wharton School. Proceedings of the Conference have been prepared and distributed to those who attended. A limited number of the Proceedings are available through the offices of the American Statistical Association at $.75 per copy.

The Proceedings of the 1955 Conference on Business Statistics contain the following papers:

1. Linear Programming Section, MERRILL M. FLOOD, Chairman;
   - "A Brief Outline of Linear Programming", CARL N. KLAHR, *Columbia University*
   - "Computers and Linear Programming", DEAN N. ARDEN, *Massachusetts Institute of Technology*
   - "The Current Status of the Industrial Use of Linear Programming", L. WHEATON SMITH, *General Electric Company*
2. Inventory Control Section, T. M. WHITIN, Chairman;
   - "Inventory Control and Computers", ROBERT H. GREGORY, *Massachusetts Institute of Technology*
   - "A Monte Carlo Model of an Air Force Type Supply System", H. W. KARR, *RAND Corporation*
3. Business Expectations Section, JEAN B. CROCKETT and IRWIN FRIEND, Chairmen;
   - "Plant and Equipment Expenditures as Estimated by the Securities and Exchange Commission and the Department of Commerce", VITO NATRELLA, *Securities and Exchange Commission*
   - "Planned and Actual Capital Expenditures by Companies in the McGraw-Hill Annual Surveys of Business Plans for New Plant and Equipment", MARGARET MATULIS, *McGraw-Hill Book Company*
   - "Methods of Capital Budgeting", AVRAM KISSELGOFF, *Allied Chemical and Dye Corporation*
4. Sales Forecasting Section, LEONARD A. DRAKE, Chairman;
   - "How to Forecast Sales of Consumer Durable Goods", ANTHONY E. CASCINO, *Avco Manufacturing Corporation*
   - "Sales and General Business Forecasting", PAUL J. WEBER, *Hercules Powder Company*

In addition to these papers, the Proceedings contain recorders' notes of other formal presentations and of the discussions which took place.

Orders for the Proceedings should be placed promptly.

## International Statistical Conferences in Brazil

The meetings of the 29th Session of the International Statistical Institute, the Third Inter-American Statistical Conference, the IASI Committee on Improvement of National Statistics (COINS), the IASI Commit-

tee on Statistical Education, and the General Assembly of the Inter-American Statistical Institute held at Petropolis, Brazil in June and early July were well attended. Members of the official United States delegation and others who participated report that the meetings were highly successful in furthering the aims of the sponsoring organizations to contribute to the development and improvement of statistics at both the national and international level. All the American Republics were represented, and delegations from a large number of countries outside the Western Hemisphere also attended one or more of the sessions. In addition, more than a dozen international organizations were represented by observers, and a substantial number of individual statisticians and invited specialists participated.

The United States was represented by official delegations accredited to both the Third Inter-American Statistical Conference and the 29th Session of the International Statistical Institute. Raymond T. Bowman, Assistant Director for Statistical Standards, U. S. Bureau of the Budget, was designated as Chairman of the official United States delegation to both meetings. Robert W. Burgess, Director of the Bureau of the Census, served as a Vice-Chairman of the official delegation to the ISI session, and Donald C. Riley, Deputy Chief, Office of Statistical Standards, Bureau of the Budget, served as Vice-Chairman of the IASI and ISI delegations.

Other American members of the ASA attending the meetings included:

| | |
|---|---|
| Joseph A. Becker | Department of Agriculture |
| Charles A. Bicking | Office of the Chief of Ordnance |
| Chester I. Bliss | Connecticut Agricultural Experiment Station |
| Donald J. Bogue | University of Chicago |
| Grant I. Butterbaugh | University of Washington |
| Robert W. Burgess | Bureau of the Census |
| William G. Cochran | Johns Hopkins University |
| Dorothy S. Cooke | Inter-American Statistical Institute, Washington, D. C. |
| Gertrude M. Cox | Institute of Statistics, North Carolina |
| Besse B. Day | Bureau of Ships |
| Calvert L. Dedrick | Bureau of the Census |
| W. E. Deming | New York University |
| Halbert L. Dunn | National Office of Vital Statistics |
| Grover W. Ensley | Joint Committee on the Economic Report, U. S. Congress |
| W. Duane Evans | Bureau of Labor Statistics |
| Rev. William J. Gibbons, S. J. | Loyola College |
| Roe Goodman | Food and Agriculture Organization |
| Morris Hansen | Bureau of the Census |
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## Proceedings of the Interstate Conference on Labor Statistics

The Interstate Conference on Labor Statistics, sponsored by the Social Statistics Section of the American Statistical Association, the Bureau of Labor Statistics of the U. S. Department of Labor, the Wisconsin Industrial Commission and the University of Wisconsin, was held at Madison, Wisconsin, July 6–8. This was the 13th of a series of conferences initiated by the BLS in 1949 in response to recommendations of State Departments of Labor. The three-day meetings on manpower and employment statistics and industrial accident statistics were attended by 155 delegates, including officials and statisticians of the Federal, State, Territorial and Canadian Dominion and Provincial governments, company and union officials, and representatives of university bureaus of business research and economic departments. The topics discussed were listed in the June issue of *The American Statistician* ("Conference on Manpower and Employment").

Proceedings of the Conference have been prepared and a limited number will be available shortly. Mimeographed copies of Sumner Slichter's talk on "The Ford-General Motors Supplementary Unemployment Compensation Plans" are also available. Persons interested in the Proceedings or Professor Slichter's paper should write Walter Keim, Executive Secretary, Interstate Conference on Labor Statistics, Bureau of Labor Statistics, Department of Labor, Washington 25, D. C.

## Statistical Services of the Philippine Government

The Statistical Center of the University of the Philippines has published an inventory of statistics collected by the principal agencies of the Philippine Government. This inventory, "Statistical Services of the Philippine Government", describes briefly for each series the

method of collection and the way in which the information is tabulated and published. It is organized by department and bureau, with an introduction by Meredith B. Givens, UN Principal Statistical Adviser to the Statistical Center. The information was obtained from the departments by the National Economic Council in 1954 at the request of the Statistical Center, which is now in its second year of operation with the support and cooperation of the United Nations under agreement with the Philippine Government. The publication reflects the post-war growth of statistical activity as an aid to management in the measurement of operations and accomplishments throughout the government, as well as in the provision of basic information on the population and socio-economic life of the country.

Inquiries regarding "Statistical Services of the Philippine Government" should be addressed to The Statistical Center, University of the Philippines, P. O. Box 479, Manila.

## Social Science Research Council Fellowships and Grants

The Social Science Research Council has issued a preliminary announcement of the following types of fellowships and grants to be offered in 1956.

*Research Training Fellowships*, predoctoral and postdoctoral, for "more advanced research training than that which is provided in the usual Ph.D. program." All Ph.D. requirements except the thesis must be met before tenure of fellowship may begin, but application need not be deferred until that point has been reached.

*Faculty Research Fellowships*, providing half-time support for research for three-year terms. Open to college and university social science teachers, normally not over 35 years of age.

*Grants-in-Aid of Research*, to aid scholars of established competence in meeting direct expenses of their own research projects. Not open to candidates for degrees.

*Undergraduate Research Stipends*, open only to college juniors, for supervised research during the summer and the ensuing senior year. Some appointees will be granted first-year graduate study fellowships for the next year.

The Institute in Mathematics for Social Scientists, held in 1955, will not be repeated in 1956, but the Council plans to sponsor Summer Research Training Institutes of about eight weeks' duration in three or four specialized fields.

A more detailed announcement will be available in October, and applications for most types of awards will be due soon after the first of January. Inquiries should be addressed to the Social Science Research Council, 726 Jackson Place, N.W., Washington 6, D. C.

## Educational Testing Service Psychometrics Fellowships

The Educational Testing Service is offering for 1956–57 its ninth series of research fellowships in psychometrics leading to the Ph.D. degree at Princeton University. The two fellowships, which are open to men who are acceptable to the Graduate School of the University, each carry a stipend of $2,500 a year and are normally renewable. Fellows will be engaged in part-time research in the general area of psychological measurement at the offices of the Educational Testing Service and will, in addition, carry a normal program of studies in the Graduate School.

Suitable undergraduate preparation may consist either of a major in psychology with supporting work in mathematics, or a major in mathematics together with some work in psychology. However, in choosing fellows, primary emphasis is given to superior scholastic attainment and demonstrated research ability rather than to specific course preparation.

The closing date for completing applications is January 12, 1956. Information and application blanks may be obtained from: Director of Psychometric Fellowship Program, Educational Testing Service, 20 Nassau Street, Princeton, New Jersey.

## Conference on Statistics of Labor-Management Relations

The Pacific Coast Committee on Social Statistics of the Social Science Research Council held a Conference on Statistics of Labor-Management Relations at Pacific Grove, California, on May 12–13. The conference was cosponsored by the Institute of Industrial Relations of the University of California, Berkeley. There were five sessions:

"Statistics of the Union Membership" were discussed by Harry Douty of the U. S. Bureau of Labor Statistics, Helen Nelson of the California Division of Labor Statistics and Research, and Irving Bernstein of the University of California at Los Angeles.

"Work Stoppage and Mediation Statistics," with emphasis on concepts, definitions and methods, were discussed by Max Kossoris of the BLS, Glenn Bowers of the California Conciliation Service, Charles A. Pearce of the New York State Department of Labor, and Thomas J. Nicolopulos of the California Conciliation Service.

In a session on "Statistics of Health and Welfare Programs" various methodological phases of the recent California study of negotiated health and welfare plans were discussed by Helen Nelson and Alice Nehling of the California Division of Labor Statistics and Research and Charles Gardipee of the Stanford University Medical School; and statistics of utilization and costs were discussed by Arthur Weissman of Kaiser Services and C. H. Tookey of Occidental Life Insurance Co.

"Analysis of Union Contract Provisions," including the compilation of statistics of collective bargaining provisions, was discussed by Maurice I. Gershenson of the California Division of Labor Statistics and Research, Robert D. Gray of California Institute of Technology, and William S. Hopkins of the University of Washington.

In the final session, on "Statistical Problems in Measuring Employer Expenditures for Wage Supplements," Harry Douty described a project recently completed by BLS in which methods were developed and tested for measuring the cost of selected wage supplements in manufacturing industries.

Inquiries regarding the published proceedings of the conference should be addressed to the Institute of Industrial Relations, University of California, Berkeley, California.

## Second Annual Albany Conference on Government Statistics

Nearly 200 business and government statisticians met in Albany on Friday, June 10th, to discuss the development of statistical programs more closely aligned to the needs of both business and government. The conference was sponsored by the Albany Chapter of the American Statistical Association. Chairman of the conference was William E. Zimmerman, Director of the Bureau of Business Research, New York State Department of Commerce. Commissioner Edward T. Dickinson of the New York State Department of Commerce delivered the keynote address on the subject, "The Use of State Statistics by Outside Agencies". Participating in the morning session were Ralph C. Hawkins, Chief Statistician of the New York Telephone Company, and Byron T. Hipple, Deputy Commissioner, New York State Department of Social Welfare.

The luncheon address was given by Dr. Robert F. Korns, Assistant Commissioner of the New York State Department of Health, and Deputy Director of the Poliomyelitis Evaluation Center at Ann Arbor, Michigan. Dr. Korns' topic was "Statistical Considerations in the Poliomyelitis Vaccination Evaluation".

The afternoon session consisted of two concurrent panel discussions. One, on income statistics, was led by Dr. Chester B. Pond, Director of Research and Statistics, New York State Department of Taxation and Finance. Basil Y. Scott, Senior Statistician, New York State Department of Taxation and Finance, presented a paper on "State Personal Income Tax Statistics," and Ethel E. Metzendorf, Associate Economist, New York State Department of Commerce, discussed the estimation of "Income Payments to Individuals in Counties of New York State". Dr. Julius B. Maller, Chief of Research and Statistics, New York State Department of Audit and Control, and Dr. Harold L. Wattel, Economic Advisor to the Consumer Counsel, were discussants.

The other afternoon panel considered the use of statistics in testing. It was presided over by Dr. Thomas L. Bransford, Director of Examinations, New York State Department of Civil Service. Participating in the discussion were Pauline K. Anderson, Senior Employment Consultant, New York State Division of Employment; Dr. John E. Bicknell, Associate in Education Research, New York State Department of Education; Dr. Joseph Lev, Senior Statistician, New York State Department of Civil Service; Dr. Walter H. Wilke, Associate Professor of Psychology, New York University, and Dr. Joseph Zubin, Associate Research Psychologist, Psychiatric Institute, and Professor of Psychology, Columbia University.


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## ECONOMIC ANALYST

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# FEDERAL STATISTICAL ACTIVITIES

## Ewan Clague Reappointed Commissioner of Labor Statistics

The reappointment of Ewan Clague as Commissioner of Labor Statistics was confirmed by the Senate July 30th. Mr. Clague has continued with the Department of Labor as Special Assistant to the Secretary since his term expired last year. Mrs. Aryness Joy Wickens, who has been Acting Commissioner, will continue in her regular post as Deputy Commissioner.

## Principal Statistical Budgets and Programs for Fiscal Year 1956

Final appropriations for the fiscal year 1956 allowed increases totaling $2,616,000 for principal current statistical programs, as compared with requested increases totaling $4,722,000. Areas in which major increases were allowed included statistics on employment and unemployment, agricultural marketing research and agricultural estimates. Funds were also added by the Congress for specific projects in agricultural economics and statistics which had not been included in the Budget request.

No funds were allowed for the interagency program designed to improve and expand statistics on construction and housing, or for proposed additional data on wages and industrial injuries, development of State-by-State data on State and local government finances, or the increase for analysis of national economic trends. Reductions were made in the amounts requested for a number of other current programs, and for the periodic census programs.

The 1956 Budget recommendations for major statistical programs were summarized in a separate statement included in the 1956 Budget Document as Special Analysis I, following a recommendation made last year by the Subcommittee on Economic Statistics of the Joint Committee on the Economic Report. At the request of the subcommittee, the Bureau of the Budget prepared a statement on final 1956 appropriations for the programs included in Special Analysis I, which was released by the Joint Economic Committee on August 22. In the news release accompanying the report Congressman Richard Bolling, Chairman of the Subcommittee on Economic Statistics, commended "the forward steps that have been taken in strengthening these vitally needed statistical programs." He expressed regret, however, that no funds were provided for improvement in construction statistics, in view of the inadequacy of present data and the importance of the construction industry in maintaining our current prosperity; and that funds were not allowed for certain improvements in the national income series and the analysis of business trends.

A brief description of program changes in 1956 is shown below, by agency. The appropriation action for each of the agencies whose programs were included, in whole or in part, in Special Analysis I is summarized in Table I, which shows 1955 and 1956 figures for major current programs. Final action on appropriations for periodic census programs is shown in the Census Bureau statement.

TABLE 1

*Appropriations for Major Current Economic Statistical Programs by Agency (in thousands)*

| Agency | 1955 appropriation | 1956 Budget estimate | 1956 appropriation |
|---|---|---|---|
| Department of Agriculture | | | |
| Agricultural Marketing Service—Marketing research and agricultural estimates | $10,223 | $10,981 | $11,046* |
| Agricultural Research Service—Economics of production, included under Farm and land management research | 1,369 | 1,469 | 1,557† |
| Department of Commerce | | | |
| Bureau of the Census (current program) | 6,200 | 7,400 | 6,900 |
| Business and Defense Services Administration — Construction statistics, included under Industry divisions | 140 | 940 | 140 |
| Office of Business Economics | 900 | 1,000 | 900 |
| Department of Health, Education, and Welfare | | | |
| Public Health Service—National Office of Vital Statistics | 1,295 | 1,395 | 1,395 |
| Department of Labor | | | |
| Bureau of Labor Statistics | 5,350 | 6,845 | 6,065 |
| Department of the Treasury | | | |
| Internal Revenue Service—Statistical reporting | 1,685 | 1,685 | 1,582 |
| Federal Trade Commission— | | | |
| Financial reports, included under Economic and financial reports | 133 | 268 | 193 |
| Securities and Exchange Commission— | | | |
| Preparation of operational and business statistics | 126 | 160 | 156 |
| Total, current programs | 27,421 | 32,143 | 29,934 |

* Includes $65,000 not in Budget estimate, added by Congress.

† Includes $100,000 not in Budget estimate, added by Congress.

### DEPARTMENT OF AGRICULTURE

*Agricultural Marketing Service*

Marketing research and agricultural estimates

The 1956 Budget estimate included increases totaling $758,000 for market research, economic and statistical analysis, and crop and livestock estimates. The full amount of this increase was approved, and in addition Congress approved funds for two projects which had not been included in the Budget estimate—$50,000 for expanded studies on price spreads between the farmer and the consumer and $15,000 for crop and livestock reporting services in Hawaii.

*Marketing research.* Funds available for this activity in 1956 are $5,511,000, an increase of $400,000 over the amount available in 1955. The increase will provide for initiation or expansion of research directed toward increasing efficiency of resource uses in marketing, expanding outlets, and reducing product losses and costs in marketing channels. The research will be conducted in the broad areas of market development research; commodity marketing, with primary emphasis on measurement of margins and costs; biological research; and economic and physical research.

*Economic and statistical analysis.* Funds for this activity in 1956 are $1,301,000, an increase of $277,000 over 1955. The increase will be used for a survey of the present patterns of farmers' expenditures, to provide a check on the accuracy of the expenditure weights used in calculating the Parity Index and to provide a base for revising and improving the estimates of farm expenditures and of net farm income, by States and for the nation as a whole.

*Crop and livestock estimates.* The total of $4,234,000 in 1956 includes an increase of $146,000 over 1955. The increase will provide for expansion of work on methodology studies directed toward development of new and modernized sampling techniques and improved crop and livestock estimating methods, and for establishment of Federal crop and livestock reporting services in Hawaii. The increase also provides for the reinstatement of certain honey and popcorn reports, as recommended by the House Appropriations Committee and agreed to by the House-Senate conferees.

DEPARTMENT OF AGRICULTURE

*Agricultural Research Service*

Production Economics Research Branch

The 1956 appropriation of $1,557,400 includes an increase of $88,300 for expanded economic research, in cooperation with the State Agricultural Experiment Stations, to develop information that will aid farmers on farm business and adjustment problems. The expanded program will be primarily in selected States where fund limitations in the past have made it impossible to develop cooperative research programs. The 1956 appropriation also includes $100,000 for study of the effect of acreage reductions on farm income and the general economy, which had not been requested in the Budget estimate. The first year's program for this study will be limited primarily to determining the changes farmers have made in their farming programs as a result of acreage allotment programs, and evaluating the effects of these changes on farmers' income. This study will be made in selected areas in the main wheat, cotton, corn, and rice producing areas.

DEPARTMENT OF COMMERCE

*Bureau of the Census*

*Current Program for 1956*

The increase of $700,000 included in the 1956 appropriation of $6,900,000 for current programs of the Census Bureau will affect the programs dealing with business, industry, and population and housing, and will enable the Bureau to undertake work directed toward development of specialized electronic equipment for use in future censuses. Other program changes are minor.

*Business.* The annual sample survey of retail trade covering 1955 will be taken, despite the reduction in funds requested for this program. Further work will be undertaken in developing monthly dollar-volume estimates of retail inventories. The Monthly Retail Trade Report, based on a probability sample of retailers in 230 areas, will be continued, as will the Advance Retail Sales Report, based on a subsample and providing summary estimates 10 days after the close of the month. There will be no 1955 annual surveys of wholesale or service trades. The percentage-change figures now issued on sales and inventories of merchant wholesalers by kind of business are based on the probability sample for the Monthly Wholesale Trade Report. Early in 1956 national dollar-value figures will also be published, and at that time dollar-volume figures will also be issued for 1955. The reports on stocks of selected canned foods will be continued on the basis of five reporting periods a year.

*Industry.* The annual survey of manufactures, which was initiated in 1949, was not taken covering 1954 because of the Census of Manufactures covering that year. Although the funds provided for the survey covering 1955 are limited—less than half the estimated costs—plans will be developed to take a 1955 survey early in 1956. Reports in the "Facts for Industry" series, providing current statistics on commodity production and shipments, will be continued in fiscal year 1956 on about the same basis as in 1955. Many of these reports are supported by industry groups and by other Government agencies.

*Population and housing.* With the additional funds provided for the Current Population Survey, the Bureau plans to increase the number of areas in the sample from 230 to 330, and the number of households from 21,000 to 35,000. Other measures to improve the quality of the information will be developed. A gradual change-over during the course of the fiscal year is planned. Publication of the Monthly Report on the Labor Force. and of other reports on labor force, population and income based on the survey, will continue. A new series of quarterly reports on housing vacancies, based on the survey, will begin shortly. The regular program of current population estimates, providing monthly estimates for the United States and annual figures by States, will continue.

*Other programs.* There will be few changes during fiscal 1956 in the Bureau's current programs dealing with agriculture, foreign trade, and governments. In the area of statistical abstracts and reports, no edition of County Business Patterns will be in progress this year, but plans have been made to compile a new edition of the County and City Data Book when small-area results of the 1954 censuses become available.

*Periodic Censuses*

| | 1955 appropriation | 1956 Budget estimate | 1956 appropriation |
|---|---|---|---|
| | *(In thousands)* | | |
| 1954 Census of Agriculture | $16,000 | $6,000 | $5,500 |
| 1954 Censuses of Business, Manufactures, and Mineral Industries | 8,430 | 4,655 | 4,000 |
| Intercensal housing survey | — | 500 | 0 |

The reduced 1956 Budget estimates for the 1954 censuses, as compared with appropriations for 1955, reflected the progress from the collection phase to the office processing phase.

The *1954 Census of Agriculture* field work was substantially completed in December. Completion of all work on this census is expected much earlier than usual, because of the scheduling of the enumeration immediately after the close of the crop year rather than beginning in the following January or April and of the speeding up in the processing of the returns. Issuance of preliminary county and State summary

releases began in February and will be completed by December—an advance of six months from the enumeration date over similar reports for the 1950 census. Final detailed reports will be issued during 1956.

The *1954 Census of Business*, providing data on retail trade, wholesale trade and selected service trades for continental United States, Alaska and Hawaii, differs radically from previous business censuses in collection technique. Instead of a field canvass, it has been conducted as a mail canvass of establishments which have employees, using Social Security and income tax records to establish the mailing lists, supplemented by data from Federal income tax returns for "no-employee" establishments. For this reason it will cost substantially less than the previous census. Tabulations for the 1954 census will be done on Univac. Early reports, by State and county, will begin to appear late in 1955. Reports showing statistics for each trade and each subject will follow in 1956.

The *1954 Census of Manufactures*, providing data on manufacturing industries for the continental United States, Alaska and Hawaii, will have new or more detailed data on consumption of materials and components, industrial use of water, installed power equipment, the output of individual products, and the processes employed in metal fabricating. The industry tables will be more extensive and will be accompanied by more explanatory material. Data by industry will begin to be available in late 1955, and most of the information by industry and by State will be published by mid-1956. Subject reports will follow in the latter part of 1956.

The *1954 Census of Mineral Industries*, providing data on mines, quarries, and oil and gas establishments for the continental United States, Alaska and Hawaii, is a mail canvass and is being conducted jointly with the Bureau of Mines. Preliminary reports, by industry, will appear in late 1955. Final reports, by industry, State and subject, will be published in 1956.

DEPARTMENT OF COMMERCE

*Business and Defense Services Administration*

Construction statistics

A major increase for improvement and expansion of the Government's construction statistics was included in the 1956 Budget estimate of the Business and Defense Services Administration, under the appropriation item for "Industry divisions." The request would have increased the funds available for this program from approximately $140,000 in fiscal year 1955 to $940,000 in fiscal 1956, to provide for specific projects directed toward improving the soundness and reliability of existing series on new construction activity and initiating series on expenditures for alterations and repairs, materials requirements, and residential vacancies. The final 1956 appropriation was $50,000 less than for 1955, and allows no increase for the construction statistics program.

DEPARTMENT OF COMMERCE

*Office of Business Economics*

The 1956 Budget estimate of $1,000,000 contained an increase of $100,000 for improvement of the national income and product accounts—primarily to expedite use in the accounts of the results of the economic censuses being taken this year. The House committee allowed an increase of $75,000 to OBE, but for a totally different purpose—"to finance a special study of unemployment throughout the country." In the Senate and in the final bill funds for OBE were kept at the 1955 level. No major changes will be made in the OBE program during fiscal year 1956.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

*Public Health Service*

National Office of Vital Statistics

The 1956 Budget estimate of $1,395,000 included an increase of $100,000 for the National Office of Vital Statistics, which was granted in full by the Congress.

The most important feature of the NOVS program in 1956 will be the attempt to reduce the time lag in publication of vital statistics reports, and return annual statistical publications to their pre-1950 schedule.

Birth statistics will be tabulated from 100 percent of the registrations for 1955, instead of the 50 percent sample which has been used in tabulations for the years 1951–54. During the fiscal year 1956, however, the processing of 1955 statistics will be carried only into the card preparation phase, and tabulation and publication will follow in fiscal year 1957. It is planned to derive birth statistics for the years 1956 to 1958 from tabulations of 50 percent of the registrations, and to base those for 1955 and 1959–61 upon 100 percent of the registrations.

Studies in 1956 of "multiple" or associated cause-of-death classifications will be directed toward the possible design and development of cyclical tabulations and publication in the future, and toward exploration of the special needs of research and program direction in public health.

DEPARTMENT OF LABOR

*Bureau of Labor Statistics*

The 1956 appropriation of $6,065,000 includes increases of $715,000 for an expanded program of studies in the fields of employment statistics and manpower analysis out of a total increase of $1,011,000 requested for this purpose. Other increases requested for 1956, denied by the Congress, were planned for expansion of the community wage program, an annual summary of industrial relations developments, new studies in the field of construction (principally, revised estimates of labor requirements for new construction, and annual surveys of residential builders' operations and of basic housing characteristics), expanded statistics on work injuries, and new studies of workmen's compensation administration.

*Employment statistics and manpower studies.* The increase of $715,000 for work in this area will be used for the following projects:

1. Additional grants to State agencies for the improvement of area employment and earnings series, principally in Illinois, Ohio and Texas. In addition, the BLS will begin the transfer of the national labor turnover sample to the States, which will be accomplished for approximately 20 States in fiscal year 1956. Expanded State samples are expected to permit the release by State agencies of turnover statistics for major local areas.

2. Development of a series on overtime hours worked in manufacturing industries. Publishable indexes on overtime hours will not be available until late in the fiscal year, although initial collection will occur in January 1956 when new employment and earnings questionnaires will be introduced.

3. Development of additional industry detail on employment, hours and earnings for selected nonmanufacturing industries, primarily finance and service.

4. Developing analyses of the characteristics of unemployment and of the unemployed. This is to be accomplished in part through analysis of the unemployed. This is to be accomplished in part through analysis of a small sample of the insured unemployed, in part through the addition of questions

to the Current Population Survey conducted by the Census Bureau, and through other specially designed studies. In this program the BLS will attempt to assess the effect on the volume of unemployment of such factors as seasonal fluctuations, casual or intermittent employment, job changing by new entrants to the labor force, employment declines in depressed areas and industries, structural changes in the economy, etc. Not all studies will be completed in fiscal year 1956; some will represent only pilot work leading to more comprehensive and definitive studies to be proposed in the future.

5. Work on a new edition of the Occupational Outlook Handbook. The preparation of new statements on all fields of work to be covered by the Handbook will continue through March 1957, with publication of the new edition scheduled for early fall in 1957. Results of the occupational research will be published periodically, perhaps quarterly, during the period in which the occupational statements are in preparation for inclusion later in the Handbook.

*Wages and industrial relations.* The program in this area will not differ in essentials from that conducted in fiscal year 1955. However, with the amendment of the Fair Labor Standards Act to provide for an increase in the Federal minimum wage rate from 75 cents to $1.00 per hour, a program of studies on the effects of this increase will be inaugurated. The Wage and Hour and Public Contracts Divisions and the BLS are now considering plans for such studies, to begin in fiscal year 1956 and continue into the next fiscal year.

*Industrial injuries.* No new work will be undertaken in this field. It is expected that resources will permit the addition of two States to the Federal-State cooperative program of injury statistics.

*Prices and cost of living.* No essential change will occur in this program during fiscal year 1956. The BLS will publish actual retail prices for perhaps as many as 150 commodities for 10 of the cities included in the Consumer Price Index. Work will continue on the preparation and release of a wholesale price index series built on an economic classification, in which commodities will be classified as raw or crude, semi-finished, and finished. The first release will include monthly data back to January 1947. In fiscal 1955 several local pilot surveys were made of current consumer purchases as a check on the sample of stores included in the Consumer Price Index and to measure quantitatively the effect on the CPI of the rapidly increasing numbers of "discount" stores. Surveys of this type will be continued in fiscal year 1956.

*Other programs.* No changes are anticipated in the BLS programs concerned with productivity, foreign labor conditions or construction statistics. Plans provide for extension of productivity indexes for manufacturing through 1953 and for reconciliation of basic data with statistics developed in the 1954 Census of Manufactures.

Some idea of the possible application of automatic technology will be obtained from a limited number of case studies of automation.

The BLS will also contribute to the Department of Labor programs relating to (1) employment problems of the older worker, and (2) developing skills of the work force.

DEPARTMENT OF THE TREASURY

*Internal Revenue Service*

Statistical Reporting

No increase was requested in 1956 for the statistical reporting services of the Internal Revenue Service, which provide the tabulations of income tax returns used as benchmarks for most current series on the financial condition of business and for major components of the national income and product accounts. As a result of savings made possible through use of the Univac in tabulating the tax returns, however, a reduction of $103,000 was made in funds available for 1956.

FEDERAL TRADE COMMISSION

*Financial reports*

The 1956 Budget estimate of $268,000 included an increase of $135,000 for improvements in the financial reports program conducted jointly by FTC and the Securities and Exchange Commission. The increase was planned to permit expansion of the program to include mining and trade corporations, to make possible preparation and publication of preliminary estimates, and to institute a new sample. The $60,000 increase made available for this program in 1956 will permit institution of the new sample, but will not be sufficient to extend the program this year to include mining and trade corporations.

SECURITIES AND EXCHANGE COMMISSION

*Preparation of operational and business reports*

The 1956 Budget estimate of $160,000 for this item included an increase of $34,000 for statistical activities to permit improvement of the SEC estimates of savings and of expenditures on plant and equipment; and to finance the SEC portion of the FTC-SEC financial reports program to include mining and trade corporations. Although inclusion of the mining and trade corporations will not be possible this year, the increase available will provide for a survey of savings in the form of pension funds, a survey of factors affecting business decisions on plant and equipment expenditures, study of the cost of flotation of securities issues, and some improvements in the manufacturing portion of the financial reports program.

## Joint Ecomonic Committee Hearings on FRB Task Force Reports

The Subcommittee on Economic Statistics of the Joint Committee on the Economic Report held hearings on July 19 and 26 on the reports of the first two of the five task groups established by the Board of Governors of the Federal Reserve System. The task groups were established at the subcommittee's request to evaluate statistical information available in the fields of savings, business inventories, and business and consumer expectations.

The task group studying statistics of Plant and Equipment Expenditure Expectations met in panel discussion with the subcommittee on July 19, in the first public presentation of their findings. Their report presents a number of recommendations for improving estimates of anticipated expenditures on plant and equipment, and suggests additional series which should be explored. Members of the task force are: George Terborgh (chairman), Research Director of the Machinery and Allied Products Institute; Walter Hoadley, Armstrong Cork Company; Irwin Friend, University of Pennsylvania; Miles L. Colean, consulting economist; William Butler, Chase National Bank; and Paul Simpson, Federal Reserve Board.

The task group studying Savings Statistics presented its findings to the subcommittee on July 26. Their report contains a section on the concepts and objectives of statistics of savings, a description of existing savings statistics in the United States, and recommendations for improving our sav-

ings statistics. Members of this task group are: Raymond W. Goldsmith (chairman), of R. W. Goldsmith Associates, Inc.; Solomon Barkin, Textile Workers Union of America; Simon Kuznets, Johns Hopkins University and National Bureau of Economic Research; James J. O'Leary, Life Insurance Association of America; Roy L. Reierson, Bankers Trust Co.; Edward Shaw, Brookings Institution and Stanford University; and Dorothy S. Projector, Federal Reserve Board.

Representative Bolling, Chairman of the Subcommittee on Economic Statistics, expressed his confidence that the findings of these experts will represent an important contribution to the knowledge and understanding of the problems of data collection and interpretation, and will serve both the subcommittee and the Congress as a basis for improvement of statistical programs.

—JOHN LEHMAN, *Clerk,*
*Joint Committee on the Economic Report,*
*U. S. Congress*

## Census Reports on Nativity, Industry, Fertility, and Marital Status

The Bureau of the Census has recently issued four Series P-E reports based on special tabulations and analyses of data from the 1950 Census of Population, providing more detailed cross classifications than have previously been published. In addition to the reports described below, Series P-E reports on occupation, families, and population mobility are in preparation.

"Nativity and Parentage" (Series P-E No. 3A) shows characteristics of the white population classified as native of native parentage, native of foreign or mixed parentage, and foreign born. These characteristics include age, sex, marital status, years of school completed, employment status, occupation, and income. Additional data are presented on country of origin of the foreign white stock and on characteristics of persons with selected countries of origin. Data on certain subjects are presented for regions, divisions, States, standard metropolitan areas, and large cities. Some of the figures are based on complete counts and some on the 20-percent sample.

"Industrial Characteristics" (Series P-E, No. 1D) presents national data on selected characteristics of men and women workers in each of the 146 categories of the detailed industrial classification system used in the 1950 Population Census. The characteristics include urban-rural residence, race, age, class of worker, major occupation group, and hours worked during the census week for employed persons; and weeks worked in 1949 and income in 1949 for the experienced civilian labor force. The report also presents statistics on the race, age, hours worked, and weeks worked of the men and women in each of the four class-of-worker categories, i.e., private wage and salary workers, government workers, self-employed workers, and unpaid family workers. The data are based on a 3⅓ percent sample.

"Fertility" (Series P-E, No. 5C) presents statistics on women in 5-year age groups by number of children ever born and by number of children under 5 years of age. At the national level these data are shown by color, marital status, and urban-rural residence in relation to duration of marriage, labor force status of the woman, years of school completed by the woman, and occupation of the husband. Fertility data are given for women of Spanish surname in five Southwestern States and data on children ever born are presented for women in each State by urban-rural residence, with color for selected areas. The appendix contains materials on the quality of the data. Most of the figures in the report are based on a sample which varies from 3⅓ percent to less than one percent, with an average of about 2.4 percent.

"Duration of Current Martial Status" (Series P-E, No. 2E) provides statistics on social and economic characteristics of women who had been married once, remarried, separated, divorced, or widowed for specified periods of time before the date of the 1950 Census. These characteristics include color, farm residence, number of times married, age at marriage (separation, divorce, or widowhood), age of husband at marriage, number of children ever born, years of school completed, and labor force status. The figures are shown for the United States as a whole and are based on the same sample as the fertility report.

Copies of these reports are for sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C. The prices are $1.50 for Series P-E, No. 3A, "Nativity and Parentage"; 55 cents for Series P-E, No. 1D, "Industrial Characteristics"; $1.00 for Series P-E, No. 5C, "Fertility"; and 40 cents for Series P-E, No. 2E, "Duration of Current Marital Status."

—PAUL C. GLICK,
*Population and Housing Division,*
*Bureau of the Census,*
*Department of Commerce*

## New BES Reporting Program on Claimant Characteristics

Detailed information on the personal and economic characteristics of unemployed persons filing claims for unemployment insurance will soon be available on a monthly basis as a result of a new reporting program of the Federal-State employment security system. The first reports to be submitted by State employment security agencies are due in the national office of the Bureau of Employment Security in early October and will relate to the month (5 weeks) ending with the week containing the 12th of September. Following a test-check period, first publication of summary data is expected by the end of November.

The program will be based on a nationwide sample of one percent. The reports will contain individual line-item entries for each claimant in the sample, covering all claims transactions under the three unemployment insurance programs operated by State employment security agencies: State unemployment insurance, unemployment compensation for Federal employees, and unemployment compensation for veterans.

Information to be obtained from this program, as Under Secretary of Labor Larson pointed out in describing the new system to State employment security administrators, is designed primarily to aid in the development of national policies and programs for dealing with unemployment. It will provide the factual base needed for such measures as promoting suitable employment opportunities, helping to guide Federal economic policies, encouraging necessary training programs, analyzing the causes of unemployment, and developing recommendations for improving unemployment insurance. A basic purpose of the information is to enhance public understanding of the nature and significance of current unemployment problems. In addition, it is expected that the data from the survey will permit various by-product analyses leading to some refinement in the overall statistics on insured unemployment which are now regularly released by the BES.

The following items of information will be reported on personal and economic characteristics of claimants in the sample, with most of the data obtained when the new claim is filed: Social Security number and name; sex and veteran status; age (year of birth); marital status; occupational group; industry (3 digits for manufacturing, 2 for nonmanufacturing); total base period wages to extent available; weekly benefit amount; potential duration (weeks) of benefit payments; duration of insured unemployment (weeks since initial claim filed); number of persons in claimant's family (optional); number of persons in family who are working (optional); and whether claimant is normally principal or secondary wage earner (optional).

Examination of the type of information to be collected, as listed above, indicates the extensive possibilities for current analysis and special studies on the basis of this new reporting program. Analyses will be made by occupation, industry, age, sex, duration of unemployment and marital status, as well as by cross-classifications of these characteristics. In presenting the characteristics data on a current basis, attention is expected to be given primarily to initial claims (representing new spells of unemployment), insured unemployment for the week ending nearest the 15th (for comparability with Census data), and terminations of claims series (exhaustions, disqualifications, and voluntary dropouts). If adequate information is provided on the several optional items, additional analysis can be made by size of family, and the number of wage earners in the family.

—Louis Levine, *Assistant Director, Bureau of Employment Security, Department of Labor*

### Average Retail Prices for Commodities and Services in the CPI

The Bureau of Labor Statistics has issued Bulletin 1182, entitled "Average Retail Prices: Collection and Calculation Techniques and Problems." This bulletin represents the first publication by the BLS of average retail prices for a comprehensive list of the commodities and services priced for the Consumer Price Index, in addition to foods, fuels, and rents. Average prices in 10 large cities are presented for quarterly dates from December 1952 to December 1954 for approximately 125 items. These items were selected from the full list of items in the following index groups: housing (repairs and maintenance, household textiles, floor covering and furniture, appliances and other housewares, and household operation), apparel, transportation, medical care, personal care, reading and recreation, and other goods and services. The 10 large cities for which these basic data are presented are: Atlanta, Baltimore, Chicago, Cincinnati, Detroit, Los Angeles, New York, Philadelphia, St. Louis, and San Francisco.

The absence of actual retail prices on a comprehensive basis has long been one of the serious gaps in basic source materials for economic studies. Their publication has been urged by the Office of Statistical Standards of the Budget Bureau and many organizations and individuals for many years. It is expected that this bulletin will provide at least some of the data needed for various kinds of marketing, demand, and consumption studies.

Sections of the bulletin contain discussion of the complex problems involved in the collection of retail prices, with emphasis on quality identification. Brief descriptions are also given of the methods used to select cities, items, and outlets. Students of price history may be particularly interested in an appendix in which the basic retail price data collected by BLS in shipbuilding cities during World War I have been summarized.

Copies of Bulletin 1182, "Average Retail Prices," may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at 55 cents a copy.

—Ethel D. Hoover, *Chief, Branch of Consumer Prices, Division of Prices and Cost of Living, Bureau of Labor Statistics, Department of Labor*

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THE FUTURE ANNUAL MEETINGS OF THE ASSOCIATION WILL BE HELD AS FOLLOWS:

| | Headquarters | Dates |
|---|---|---|
| **1955 New York City** | **Hotel Biltmore** | **December 27-30, 1955** |
| 1956—Detroit, Mich. | Hotel Sheraton-Cadillac | September 7-10, 1956 |
| 1957—Atlantic City, N. J. | Hotel Ambassador | Second week in September |
| 1958—Chicago | — | Christmas Week |

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# *SAMUEL WEISS, STATISTICIAN*

Samuel Weiss died on July 23, 1955 at the age of forty-five. With his passing, the statistical community has lost one of its prominent members.

His impact upon statistics was strong and wide. As an advisor and counsellor, he helped shape statistical policy in agencies of the United States and the Puerto Rican governments; as an organizer and coordinator, he was instrumental in the development of professional organizations; as an inspiring leader, he supervised and guided the professional work of numerous statisticians; and as a teacher, he had a strong influence upon the professional development of his students. In each of his varied roles, he was, to some extent, a "statistical statesman" exhibiting skill in dealing with the affairs of the statistical community, with an eye for the essential, and a vision which reached far into the future.

In Samuel Weiss were combined qualities rarely found in one statistician. He was a technician and administrator, a theorist and practitioner, an analyst and interpretor. Broadness of scope was characteristic of him and his influence was felt in many areas. His greatest interest probably was in statistical techniques and he was most gratified when the American Statistical Association made him a Fellow with special recognition "for his impact on statistical techniques."

It was through speech and action that Mr. Weiss exerted great influence upon the statistical community. He taught at the American University, at the Graduate School of the U. S. Department of Agriculture, and at the Catholic University of America. It was here that he brought his scientific knowledge, practical ability, and desire for high statistical standards directly to the students. He was one of those naturally gifted educators who like to teach and who are liked as teachers. Mr. Weiss delivered several papers at meetings of the American Statistical Association, dealing with such topics as establishment sampling, employment statistics and capacity measurement, and he spoke at innumerable meetings and gatherings of statisticians. A dynamic person, his life was characterized by action.

The major part of Mr. Weiss' professional life was devoted to government service. He began his professional career in the Pennsylvania State Department of Welfare in the 1930's. During the Second World War he served with the War Manpower Commission. In 1946, he joined the Bureau of Labor Statistics in the U. S. Department of Labor, where he was instrumental in developing the Federal-State Employment Statistics Program which is so firmly established today. Not only did he institute new high standards in the field of employment statistics, but later, as Chief Statistician of the Bureau of Labor Statistics, he contributed to the advancement of statistical work in the Bureau and in other agencies of the Federal Government. Today and for years to come, many statistical programs of the Federal Government will bear the mark of Mr. Weiss' administrative and technical abilities. During the last year of his life, he organized and headed a private research organization.

The American Statistical Association, to which Sam Weiss devoted so much of his time, interest and energy, has a special reason to be grateful for his services. As executive director for the past six years, he was instrumental in expanding the activities of the Association to their present high levels. Earlier this year, he could report that "The American Statistical Association now has the largest membership and the largest financial surplus in its history."

In addition to his association with the American Statistical Association, Mr. Weiss was a member of various professional organizations. He was a secretary of the Allied Social Sciences Association and a Fellow of the American Association for the Advancement of Science. In 1949 and 1953 he was a representative to the International Statistical Institute.

Sam Weiss came to this country from Russia as a boy. Later he attended the University of Michigan where he earned his BA and MA degrees. He travelled a hard road up and always remained hard-working and fast-moving. Rarely satisfied with a single outlet for his abilities, he fitted a full life's activity into a short span. Samuel Weiss was of high intellectual capabilities yet unassuming. His quick penetration of difficult problems was unusual; his zeal and energy in behalf of the profession he loved were outstanding. He was a man of imagination with an ability to improvise. A warm friend, a stimulating associate, a friendly person with a sense of humor, Samuel Weiss will be remembered for a long time.

F. K.

# DIFFUSION INDEXES: A COMMENT

*GEOFFREY H. MOORE*

*National Bureau of Economic Research*

In the preceding issue of *The American Statistician* Arthur Broida analyzes some of the characteristics of diffusion indexes, especially their relation to rates of change in economic aggregates, and raises some questions concerning their potential value for business forecasting. Coincidentally an analysis of the latter problem by Milton Lipton appeared in *The Business Record* (June 1955) of the National Industrial Conference Board. These contributions prompt me to make some observations.

### 1. Diffusion Indexes and Rates of Change

I believe it has been clearly established by the tests we have made at the National Bureau, by the work in Germany at the IFO-Institute, by Lipton's examination of production, price, and sales aggregates[1], and by Broida's analysis of the Federal Reserve production index that certain types of diffusion indexes, namely those computed by taking directions of change over identical intervals in the components of economic aggregates, are closely correlated with the rates of change in the corresponding aggregates. Under these circumstances it is possible to get a fairly good estimate of the current level of a diffusion index from the corresponding rate of change, or a fairly good estimate of the current rate of change from the corresponding diffusion index, and there are occasions when such estimates are of interest. Millard Hastay, for example, has made use of the latter route in his analysis of the Dun and Bradstreet surveys, where data on anticipations are given only in terms of diffusion indexes.[2] The Munich Institute has done the same thing with their surveys in order to get prompt and relatively inexpensive estimates of aggregates.[3]

Nevertheless, one must not forget that a high correlation is not the same as an identity; there may be systematic and significant differences between highly correlated variables. Mr. Broida's paper raises the question, at least implicitly, what these differences, if any, are, and hence whether there is any point in compiling diffusion indexes when economic aggregates and their rates of change are readily available. I think there are good reasons for doing so.

One of the fundamental features of our economic system is that economic movements spread from one firm to another, from one industry to another, from one region to another, and from one economic process to another. Moreover, these spreading movements cumulate over time. This being so, it is desirable to have measures showing how this spreading and cumulation goes on. A diffusion index is just such a measure. The rate of change in the usual sort of aggregate is not, even though it may be closely correlated with a diffusion index. This follows from the fact that the rate of change in an aggregate is independent of the economic units or components into which the aggregate may conceivably be divided and among which the spreading and cumulation of economic change goes on; the rate of change can be computed without specifying the unit, the diffusion index cannot. In other words, one cannot construct a diffusion index without deciding whether the unit should be the firm, the industry, the region, or the economic process. It therefore focuses attention on the economic entities whose activities are added up to form an aggregate.

More than that, a diffusion index focuses attention on the interrelations among these activities, for it provides a simple measure of intercorrelation. For example, we have found that diffusion indexes for output and employment in durable goods industries have larger amplitudes than indexes for nondurable goods industries. This is a direct observation to the effect that the durable goods industries tend to keep in step with one another more closely than the nondurables. This behavior clearly has an effect on the movement of aggregate indexes of output or employment in durable goods and in nondurable goods; it contributes to the more rapid rates of change typically shown by durable goods indexes. But from the rates of change in the aggregate indexes themselves it would be a most uncertain inference that the movements in the durable goods industries are more closely intercorrelated than those in the nondurable goods industries, for it is also true that most individual durables show wider relative changes than nondurables, and *this*

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[1] *The Business Record*, June 1954.

[2] Millard Hastay, "The Dun and Bradstreet Surveys of Businessmen's Expectations," *Proceedings of the Business and Economic Statistics Section*, 114th Annual Meeting of the American Statistical Association, Montreal, Canada, September 1954.

[3] Oskar Anderson, Jr., "The Business Test of the IFO Institute for Economic Research, Munich, and Its Theoretical Model," *Review of the International Statistical Institute*, Vol. 20, pp. 1–17, 1952.

might be responsible for the behavior of the aggregates. On the other hand, the less rapid rates of change in the nondurable industries could not be responsible for the behavior of the diffusion indexes, since they are constructed without reference to the size of the change in the component industries.

As this example illustrates, diffusion indexes have enabled us to discover and establish certain facts about the behavior of the economy that we had not found by rather extensive studies of rates of change in economic aggregates. Another example: our studies of diffusion indexes support the broad statement that the scope of a business cycle expansion or contraction invariably diminishes toward the end of the expansion or contraction. In our experience the factual evidence would not warrant a similar statement regarding rates of change in most economic aggregates; the evidence, particularly for expansions, is far more equivocal and conflicting.[4] Again, we have found from study of diffusion indexes that the scope of a contraction in its early stages is roughly correlated with the magnitude of the contraction. Perhaps something similar is true for the rates of change in the various available aggregates—after all, they are correlated with diffusion indexes. But I believe that some analytical significance attaches to the finding apart from whether the phenomenon is reflected in rates of change. For instance, it underlines the importance of policies that promptly have a *general* effect on the economy, as well as the importance of knowing how general the effects of various types of policy are.

It is possible, too, that consideration of the kind of information utilized in diffusion indexes will contribute to the further development of certain business cycle theories, such as the acceleration principle which has ordinarily been formulated and tested in terms of the rate of change in aggregate output. For it seems likely that, in so far as business firms vary their investment with the rate of change in output, it is the rate of change in their own output, not that in aggregate output, to which they react. And since the reaction to a decrease in output cannot, in general, be equal and opposite to the reaction to an increase in output, it is important to know something about the distribution of increases and decreases among firms.[5] A diffusion index may not provide all the required information, but it does supplement significantly the information provided by the rate of change in aggregate output.

The relationships between diffusion indexes and rates of change are far from simple, and one cannot always make a choice, as Broida appears to do, in favor of the rate of change simply because it includes information that is not utilized in the diffusion index. The additional information may obscure rather than clarify, or it may be more useful when considered separately from the information provided by a diffusion index. Indeed, as I have already noted, it is equally true that a diffusion index contains additional information, information that cannot be inferred from the rate of change. Clearly, however, we need to know more about these relationships. In the course of our researches a number of puzzling phenomena have appeared. Some are illustrated in Chart 1.

Here the diffusion indexes are plotted in cumulative form, for readier comparison with the related aggregates (alternatively, the first differences might be compared—i.e. the diffusion index proper with the rate of change in the aggregate). For production two types of diffusion index are presented, one with the firm and the other with the industry as the unit; for new orders, the firm is the unit. The production diffusion index based on the 26 industry components of the FRB index is perhaps a trifle smoother than the corresponding aggregate, and its cyclical turns are more sharply defined. The earlier turns in the cumulated diffusion index than in the aggregate index are probably accidental; we have observed no such tendency in the interwar period.

The production diffusion index computed from individual firm reports (obtained by the National Association of Purchasing Agents) is notably smoother than the industry diffusion index or the production index, though it faithfully reproduces the cyclical swings. A similar freedom from erratic movements is exhibited by the diffusion indexes for new orders, especially in comparison with the Department of Commerce aggregate. It is curious, too, that the purchasing agents' surveys show no regular seasonal variations. Whence these differences between aggregates and diffusion indexes? Various hypotheses might be offered and investigated, but until this is done I should not regard the differences as trivial, even from the standpoint of business forecasting, which was Broida's main concern.

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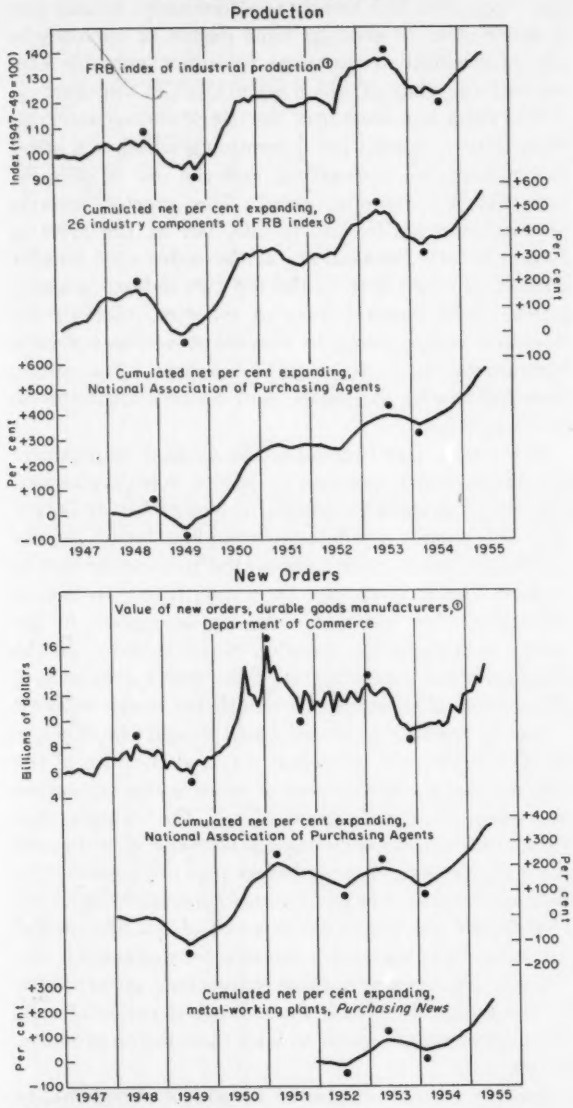
[4] Some observations on the difficulties of reaching a conclusion with respect to the cyclical patterns in rates of change may be found in Arthur F. Burns and Wesley C. Mitchell, *Measuring Business Cycles* (1946), pp. 157–160, 251–252, 343–349. Factual evidence on the matter is provided in Thor Hultgren, *American Transportation in Prosperity and Depression* (1948), pp. 157–163; Moses Abramovitz, *Inventories and Business Cycles* (1950), Chapter 15; Wesley C. Mitchell, *What Happens during Business Cycles* (1951), pp. 296–305; Geoffrey H. Moore, "Business Cycles and the Labor Market," *Monthly Labor Review*, March 1955, pp. 288–292; and Ruth P. Mack, *Consumption and Business Fluctuations* (NBER, in press).

[5] See Arthur F. Burns' review of Hicks' theory of the trade cycle, reprinted in *The Frontiers of Economic Knowledge* (1954), pp. 248–50.

**Chart 1**
**Diffusion Indexes and Economic Aggregates**
**Production and Orders**




① Adjusted for seasonal variation.
● Specific cycle peaks and troughs.
The cumulated net per cent expanding is obtained by cumulating from month to month the excess (+ or −) of the per cent increasing over the per cent decreasing.

## 2. Diffusion Indexes and Business Forecasting

Broida and Lipton both reach somewhat negative conclusions as to the value of diffusion indexes for business forecasting. Broida bases his case largely on the ground that "historical" diffusion indexes—which seem to have useful properties for forecasting—cannot be reproduced currently, while "current" diffusion indexes do not have any more forecasting value than the rate of change in aggregates, which isn't much. Lipton examines the behavior of a "current" diffusion index during 1921–39, and finds that its erratic fluctuations "tended to obscure whatever lead it evidenced at business cycle turning points," although it did "successfully mark each of the nine turning points." He concludes that "the diffusion index, while admittedly an imperfect mechanism for forecasting cyclical fluctuations, is a useful analytical tool for identifying current and near-term business trends."

The National Bureau's investigations of diffusion indexes have as their basic objective the discovery and verification of significant generalizations about business cycle phenomena. If such generalizations are discovered, they ought to be useful in forecasting. But there is often a long and tortuous road between scientific generalization and successful practical application, and even the ultimate application may not come to much.

I have already indicated some of the generalizations about the behavior of diffusion indexes that are suggested by the evidence so far assembled. The two most important, in my judgment, are: (1) cyclical expansions or contractions in aggregate activity diminish in scope before they come to an end; (2) contractions that ultimately become severe are widespread in their early stages. I have examined much of the evidence for these generalizations in my paper, "The Diffusion of Business Cycles,"[6] and there is no need to repeat it here. In the end they may or may not prove of much help to the practical forecaster and they may, of course, be modified or extended in the course of further investigation.

Apart from this, there are a few points that the practical forecaster should bear in mind as he studies Broida's and Lipton's evaluations. Broida draws a distinction between "historical" and "current" diffusion indexes. Various devices have enabled us to approximate, on a "current" basis, the so-called "historical" indexes based on the identification of specific cycle turns in individual component series. None of these devices are fully successful in reproducing exactly any given "historical" index. But this does not preclude the possibility that diffusion indexes can be constructed that will enable one to make judgments as to what the comparative scope of the current cyclical movement is and whether it is increasing or receding—judgments that will correspond at least broadly to those that historical materials will subsequently provide. If these questions can be answered affirmatively, there is some hope that the generalizations mentioned above may be applied in practice.

I do not presume to know the final answer to these questions, but I do see grounds for optimism. For example, a table in "The Diffusion of Business Cycles"

[6] In *Economics and the Public Interest*, Robert A. Solo, (*ed.*), (Rutgers University Press, 1955).

shows the timing at successive business cycle turns over a 25-year period of a group of "historical" diffusion indexes and a group of "current" indexes. I believe the entries for the two groups are broadly similar from cycle to cycle, and both show a tendency to lead the turn in aggregate activity by six months to a year, as is suggested by Table 1 which gives the results for the production diffusion indexes. Possibly these timing entries overstate the similarity between the two types of indexes; there are also very considerable differences between them. But there is at least this basic resemblance, which a practical forecaster may seek to improve upon.

Some devices that may assist him in this process, which demonstrate further the affinity between "historical" and "current" indexes, are illustrated in Chart 2. At the top is the historical index *par excellence*, an index based on specific cycles identified in 705 time series covering a wide variety of types of economic activity. The next line is constructed from 153 series covering a similar variety of activities. Here a series is said to be "expanding" in a given month if its level six months later is higher than its level six months earlier. That is, the entries are based on the familiar comparison with the same month of the previous year, and are centered in the middle of the interval. This too is an "historical" index—at least, it is always six months out of date. But note also that it need never be more than six months out of date, aside from lags in publication of data. Moreover, although "six months ago" may seem like history to a forecaster, he may find it worthwhile to give up some degree of currency in his information in exchange for other valuable considerations, many of which are evident in the chart.

TABLE 1

*Timing of Production Diffusion Indexes at Business Cycle Peaks and Troughs, 1920–38, 1948–54*

| Type of Turning Point | Date of Business Cycle Turn[a] | Date of Specific Turn in Production Diffusion Indexes | | Lead of Production Diffusion Indexes at Business Cycle Turns, in Months | |
|---|---|---|---|---|---|
| | | "Historical" | "Current" | "Historical" | "Current" |
| Peak | Jan. 1920 | July 1919 | July 1919 | −6 | −6 |
| Trough | July 1921 | Dec. 1920 | Sep. 1920 | −7 | −10 |
| Peak | May 1923 | Nov. 1922 | June 1922 | −6 | −11 |
| Trough | July 1924 | June 1924 | June 1924 | −1 | −1 |
| Peak | Oct. 1926 | Dec. 1924 | Dec. 1924 | −22 | −22 |
| Trough | Nov. 1927 | Sep. 1927 | Sep. 1927 | −2 | −2 |
| Peak | June 1929 | Nov. 1928 | Aug. 1928 | −7 | −10 |
| Trough | Mar. 1933 | Feb. 1932 | Aug. 1930 | −13 | −31 |
| Peak | May 1937 | June 1936 | Oct. 1936 | −11 | −7 |
| Trough | June 1938 | Oct. 1937 | Dec. 1937 | −8 | −6 |
| Peak | Nov. 1948 | | Nov. 1947 | | −12 |
| Trough | Oct. 1949 | | Feb. 1949 | | −8 |
| Peak | July 1953 | | Sep. 1952 | | −10 |
| Trough | Aug. 1954 | | Sep. 1953 | | −11 |

[a] NBER chronology; the peak of February 1945 and the trough of October 1945 are omitted.

Source: "The Diffusion of Business Cycles," *op. cit.*, Table 2. Entry for 1954 has been added.

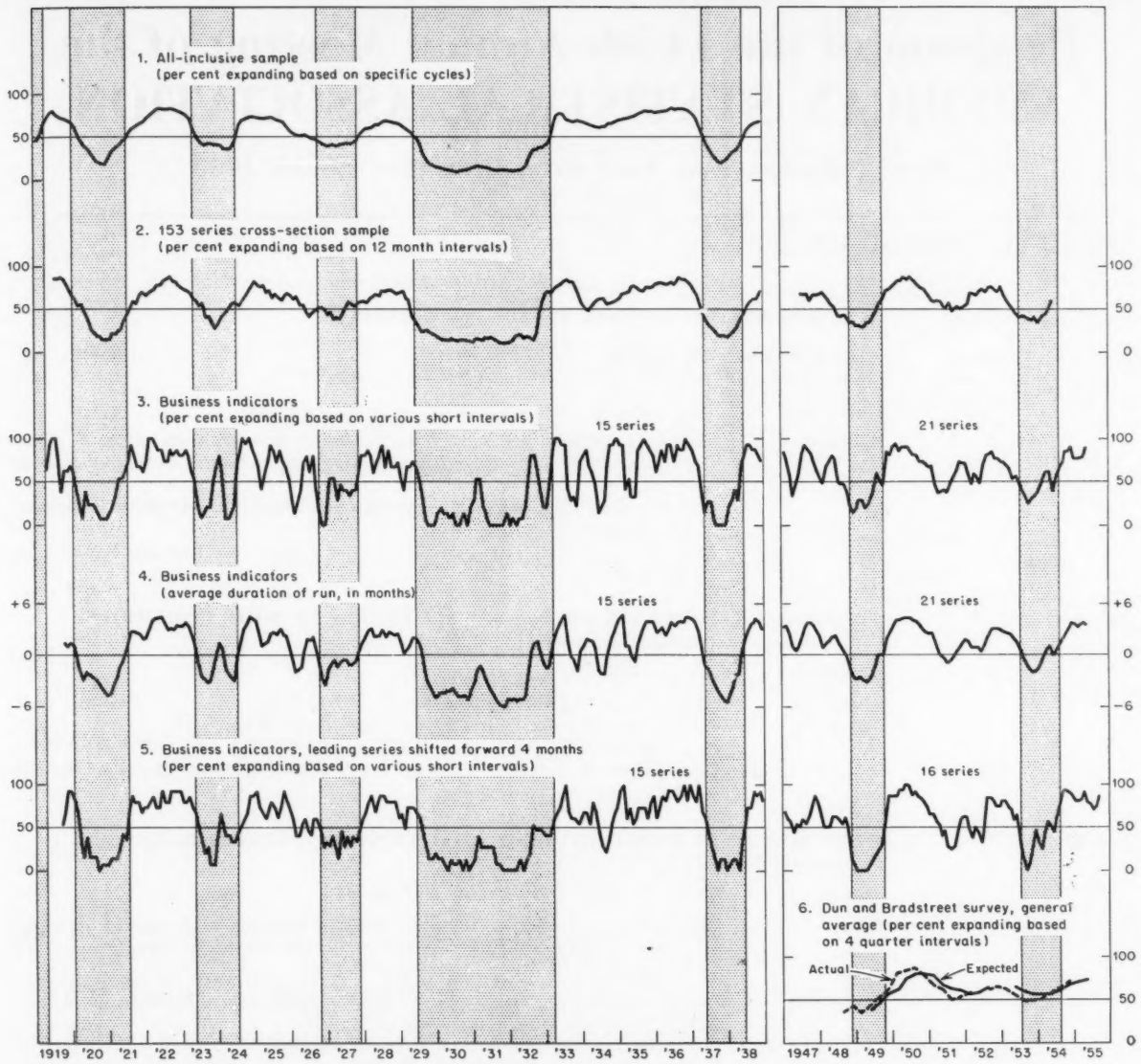
The third line illustrates the use of shorter intervals than twelve months for determining whether a series is expanding or contracting, and the use of different intervals for different series. The shorter interval permits more up-to-date results, but at the price of greater erratic fluctuations in the index (the smaller number of series than in the top two indexes is also a factor). The varying interval (shorter intervals for smoother series) helps to prevent widespread erratic fluctuations, such as might be caused by a strike, from influencing the index, and hence contributes to its smoothness.

The fourth line illustrates the average duration of run device, which was used by Lipton in his evaluation. This type of index is ordinarily somewhat smoother that the simple percentage expanding based on the same data, but is more complicated to compute and to explain, and it often lags by a month or two behind the latter. The reason for the lag is implicit in the theory underlying the duration of run statistic. In the simple percent expanding each successive change in a given series from month to month (or longer interval if that is used) is accorded equal weight; in effect, a rise is counted +1, a decline −1, and the sum of the rises divided by the number of series is the proportion expanding. In the duration of run, the changes that occur later in a run of changes in the same direction are given greater weight, since longer runs are presumed to be more indicative of cyclical movements in the series. That is, the first rise is called a run of +1, the second +2, etc., while successive declines are designated −1, −2, etc. The average of these entries for a given month for the group of series is the average duration of run. The greater weight given to later movements produces the lag.

Another scheme, suggested by Milton Friedman, is shown in line 5. Here a group of series that tend to lead in business cycle movements are shifted forward by the amount of their average lead (4 months), and combined with a group that typically move together with aggregate activity. One of its merits is that the shifting spreads the impact of short-run fluctuations that affect many series at the same time, so that the diffusion index is smoother than it otherwise would be. In so far as the leading series are faithful precursors of the other series, such an index can be extrapolated forward a few months on the basis of the former alone.

The bottom pair of lines on the chart demonstrate still another device for constructing current diffusion indexes: the anticipation survey. Dun and Bradstreet

Chart 2
"Historical" and "Current" Diffusion Indexes




Shaded areas represent contractions of business cycles; unshaded areas, expansions.

make a survey every quarter of a sample of manufacturing concerns, wholesalers and retailers. They ask whether sales, orders, employment, prices, profits, and inventories are up or down in the current quarter as compared with the same quarter a year ago. The general average of these results (omitting inventories), in terms of the percentage reporting increases, is the line labeled actual. Each point is plotted in the middle of the four quarter interval over which the comparison is made, just as in the 153 series index. The survey also asks about expected results in terms of a comparison of the second quarter ahead with the same quarter a year earlier. This result too we have centered in the middle of the year. Consequently the actual and expected points plotted at a given date refer to comparisons of the same quarters, although the expected figure was available six months earlier than the actual. Now the actuals trace a course that is very similar to that followed by the 153 series index. The expecteds do so also, although they display a tendency to lag behind the actuals by about one quarter, so that the effective

**Continued on page 30**

NOTE: The program listed below is accurate up to the time this issue went to press. However, changes between now and the time of the annual meeting are inevitable. Therefore, please be sure that you consult your official program (which will be issued to you at the time you register for the annual meeting) for exact information.

# Program of the 115th Annual Meeting of the AMERICAN STATISTICAL ASSOCIATION

***Hotel Biltmore, New York City, December 27–30, 1955***

## TUESDAY, DECEMBER 27

12:00 Noon Luncheon — **BUSINESS MEETING—SOCIAL STATISTICS SECTION**

12:00 Noon Luncheon — **STOCK MARKET OUTLOOK**
*General Session—Joint with New York Society of Security Analysts*

**Chairman:** NATHAN BOWEN, *New York Society of Security Analysts*

**Speakers:**
"Railroads and the Stock Market" by PIERRE R. BRETEY, *Hayden Stone*
"The Future of Security Prices" by SHELBY CULLOM DAVIS, *Shelby Cullom Davis & Co.*
"The Economic Background of Stock Market Prices", ROBERT WILKES, *Scudder, Stevens & Clark*
"The Future of Certain Groups of Security Prices", by RICHARD LAMBOURNE, *Dodge & Cox*

2:00–4:00 P.M. — **STOCK MARKET OUTLOOK (Continued): THE FUTURE OF SOME INDUSTRIES**
*General Session—Joint with New York Society of Security Analysts*

**Chairman:** LAWRENCE KAHN, *A. G. Becker & Co.*

**Speakers:**
"Retail Trade" by JOSEPH GALANIS, *R. L. Day & Co.*
"Chemicals" by JOHN F. BOHMFALK, *Clark, Dodge & Co.*
"Oils and Light Metals" by JOHN SPURDLE, *Dominick & Dominick*
"The Impact of Taxes on Industry" by WALTER MAYNARD, *Shearson, Hammill & Co.*

2:00–4:00 P.M. — **MEASUREMENT OF MANUFACTURING ACTIVITY ON AN INDUSTRY BASIS**
*Business and Economic Statistics Section*

**Chairman:** WALTER F. RYAN, *Office of Statistical Standards*

**Paper:** "Statement of Criticisms of Industry Data and Summary of Changes Incorporated in Presentation of Industry Data in the 1954 Census of Manufactures" by MAXWELL R. CONKLIN, *Bureau of the Census*

**Discussion:**
SOLOMON FABRICANT, *New York Univ. and National Bureau of Economic Research*
LUDWIG S. HELLBORN, *General Motors Corporation*
M. A. ADELMAN, *Massachusetts Institute of Technology*
W. DUANE EVANS, *Bureau of Labor Statistics*
V. S. KOLESNIKOFF, *Office of Statistical Standards*

2:00–4:00 P.M. — **FINANCIAL INSTITUTIONS AND INTER-RELATIONSHIPS**
*Business and Economic Statistics Section—American Finance Assn.*

**Chairman:** ROBERT V. ROOSA, *Federal Reserve Bank of New York*

**Papers:**
"Financial Intermediaries and the Savings-Investment Process" by EDWARD S. SHAW and JOHN GURLEY, *Brookings Institution*
"Treasury Borrowing in Relation to Institutional Savings" by DUANE SAUNDERS, *Treasury Dept.*

**Discussion:**
LEROY M. PISER, *Aubrey G. Lanston & Co., Inc.*
PAUL W. MCCRACKEN, *University of Michigan*

2:00–4:00 P.M. — **CONTRIBUTIONS OF M. A. GIRSHICK TO MATHEMATICAL STATISTICS**
*Institute of Mathematical Statistics—American Statistical Assn.*

**Tuesday, Dec. 27**

2:00–4:00 P.M.

**ADEQUACY OF PUBLIC BENEFIT PROGRAMS**
*Social Statistics Section*

**Chairman:** EWAN CLAGUE, *Bureau of Labor Statistics*

**Papers:** "Adjustments of Families to Income Reverses" by DOROTHY BRADY & PAUL KERSCHBAUM, *Bureau of Labor Statistics*
"Some Recent Studies of Benefit Adequacy" by PHILIP BOOTH, *Bureau of Employment Security* and ALVIN DAVID, *Bureau of Old Age & Survivors Insurance*
"Long Term Principles of Adequacy—A Prognosis" by WILBUR COHEN, *Dept. of Health, Education, and Welfare*

**Discussion:** KARL SCHLOTTERBECK, *U. S. Chamber of Commerce*
LAZARE TEPER, *International Ladies Garment Workers Union*

4:00–6:00 P.M.

**THE FACTOR OF PROMPTNESS IN CURRENT ECONOMIC STATISTICS**
*Business and Economic Statistics Section*

**Chairman:** LOUIS J. PARADISO, *Department of Commerce*

**Papers:** "An Appraisal of the Speed-Up Program" Speaker to be Announced
"Weekly Business Statistics" by LEONARD LEMPERT, *Statistical Indicator Associates*

**Discussion:** CLAYTON GEHMAN, *Federal Reserve System*
SEYMOUR WOLFBEIN, *Bureau of Labor Statistics*
FREDERICK M. CONE, *Export-Import Bank*

4:00–6:00 P.M.

**COMPONENTS OF VARIANCE**
*Section on Physical and Engineering Sciences—Institute of Mathematical Statistics*

**Chairman:** C. W. DUNNETT, *American Cyanamid Co.*

**Papers:** "Components of Variance, Finite Populations, and Statistical Inference" by H. F. SMITH, *North Carolina State College*
"Expected Values of Mean Squares in the Analysis of Variance, by C. A. BENNETT, *General Electric Co.*
"Non-additivy in a Latin Square Design" by M. B. WILK and O. KEMPTHORNE, *Iowa State College*

4:00–6:00 P.M.

**CHANGES IN THE QUALITY OF CREDIT**
*Business and Economic Statistics Section—American Finance Assn.*

**Chairman:** WESLEY LINDOW, *Irving Trust Co.*

**Papers:** "Corporate Bond Quality and Investor Experience" by W. BRADDOCK HICKMAN, *National Bureau of Economic Research*
"Changes in the Quality of Bank Credit" by DONALD S. THOMPSON, *Federal Reserve Bank, Cleveland*

**Discussion:** LESTER V. CHANDLER, *Princeton University*
JAMES J. O'LEARY, *Life Insurance Assn. of America*

8:00–10:00 P.M.

**THE APPLICATION OF ELECTRONIC COMPUTERS TO ECONOMIC STATISTICS**
*Business and Economic Statistics Section—Econometric Society*

**Chairman:** SOLOMON FABRICANT, *New York Univ. and National Bureau of Economic Research*

**Papers:** "The Processing of the 1954 Censuses of Business and Manufacturers" by JOSEPH F. DALY and MORRIS H. HANSEN, *Bureau of the Census*
"Seasonal Adjustments by Census Methods I and II," by JULIUS SHISKIN and HARRY EISENPRESS, *Bureau of the Census*

**Discussion:** W. DUANE EVANS, *Bureau of Labor Statistics*
ARTHUR L. BROIDA, *Federal Reserve System*
OSKAR MORGENSTERN, *Princeton University*

8:00–10:00 P.M.

**SMOKING AND CANCER**

**Chairman:** HAROLD DORN, *National Institutes of Health*

**Papers:** "Study of Association Between Smoking and Cancer" by JOSEPH BERKSON, *Mayo Clinic*
"Consideration of Some Statistical Aspects" By E. CUYLER HAMMOND, *American Cancer Society*

**Discussion:** JERZY NEYMAN, *University of California*

## WEDNESDAY, DECEMBER 28

8:30 A.M. Breakfast

**BREAKFAST MEETING OF THE CHAPTER PRESIDENTS AND SECRETARIES AND DISTRICT REPRESENTATIVES**
*American Statistical Association*

8:30–10:30 A.M.

**CONSUMER EXPENDITURE STUDIES**
*Business and Economic Statistics Section*

**Chairman:** RUTH MACK, *National Bureau of Economic Research*

**Papers:** "Methodology and Appraisal" by HELEN H. LAMALE, *Bureau of Labor Statistics*
"Progress Report: Wharton School Research Project" by IRWIN FRIEND, *Wharton School, University of Pennsylvania*

**Discussion:** JOHN B. LANSING, *Survey Research Center*
JAY GOULD, *Sales Management*

8:30–10:30 A.M.

**ENROLLMENTS AND FINANCIAL PROBLEMS IN HIGHER EDUCATION**
*Social Statistics Section*

**Chairman:** G. KERRY SMITH, *National Education Association*

**Papers:** "Problems in Projecting Enrollments in Higher Education" by HAROLD GOLDSTEIN, *Bureau of Labor Statistics*
"Estimating Prospective Enrollments in Southern States—A Case History" by JOHN K. FOLGER, *Southern Regional Education Board*
"Problems in Financing in Higher Education" by E. V. HOLLIS, *Dept. of Health, Education, and Welfare*

**Discussion:** To be announced

10:30 A.M.–12:30 P.M.

**SOCIAL EXPENDITURES IN NATIONAL BUDGETS**
*Social Statistics Section*

**Chairman:** WILL LISSNER, *New York Times*

**Papers:** "Concept and Measurement of Social Expenditures" by N. T. WANG, *United Nations*
"The Statistician's Role in Allocating National Budget Expenditures" by CANDIDO OLIVERAS, *Commonwealth of Puerto Rico*
"Social Expenditures in the U. S." by IDA C. MERRIAM, and DOROTHY MCCAMMAM, *Social Security Administration*

**Discussion:** J. SILBERMAN, *Foreign Operations Administration*
CHARLES STEWART, *Bureau of Labor Statistics*
A. AIDENOFF, *United Nations*

10:30 A.M.–12:30 P.M.

**STATISTICAL TRAINING IN INDUSTRY**
*Section on Training*

**Chairman:** FRITZ KAFKA, *Chas. Pfizer and Co., Inc.*

**Papers:** "Current In-Industry Statistical Training Programs" by SOL DUTKA, *Audits & Surveys Co.*
"Educational Aspects of In-Service Training in Statistics" by R. P. EASTWOOD, *Columbia University*

**Discussion:** LESTER KELLOGG, *Deere & Co.*
MORTIMER SPIEGELMAN, *Metropolitan Life Insurance Co.*
RALPH E. WAREHAM, *Wareham & Associates*

10:30 A.M.–12:30 P.M.

**LIFE-TESTING**
*Section on Physical and Engineering Sciences*

**Chairman:** J. MANDEL, *National Bureau of Standards*

**Papers:** "The Weibull Distribution in Life-Testing of Electron Tubes" by J. H. K. KAO, *Cornell University*
"Accelerated Life-Testing of Capacitors" by G. L. LEVENBACH, *Bell Telephone Laboratories*

**Discussion:** To be announced

**Wednesday, Dec. 28**

12:00 Noon Luncheon

**ECONOMIC FORECAST LUNCHEON**
*General Session—Joint with American Economic Association*

**Chairman:** MARTIN R. GAINSBRUGH, *National Industrial Conference Board*

**Speakers:** EDWIN G. NOURSE, *Joint Council on Economic Education*
ALAN H. TEMPLE, *National City Bank*

2:00–4:00 P.M.

**CHANGING INDUSTRIAL STRUCTURE OF THE U. S. A.**
*Social Statistics Section*

**Chairman:** L. CHESTER MAY, *American Telephone & Telegraph Co.*

**Papers:** "Changing Patterns of Industrial Employment" by SEYMOUR L. WOLFBEIN, *Bureau of Labor Statistics*
"Measurement of Industrial and Commercial Employment" by WALT R. SIMMONS, *Bureau of Labor Statistics*

**Discussion:** CEDRIC WOLFE, *Metropolitan Life Insurance Co.*
WILLIAM H. STEAD, *Resource Management Consultant*
DAVID PINSKY, *Connecticut Dept. of Labor*

2:00–4:00 P.M.

**MAJOR DEVELOPMENTS IN THE FEDERAL STATISTICAL PROGRAM**
*Business and Economic Statistics Section*

**Chairman:** DONALD C. RILEY, *Office of Statistical Standards*

**Papers:** "Consolidated Budget for Economic Statistical Programs" by STANLEY LEBERGOTT *Office of Statistical Standards*
Preliminary Reports on the 1954 Censuses:
1. "Censuses of Manufactures, Business and Mineral Industries" by HOWARD GRIEVES, *Bureau of the Census*
2. "Census of Agriculture" by CONRAD F. TAEUBER, *Bureau of the Census*

"Construction Statistics" by WALTER SCHNEIDER, *Dept. of Commerce*
"Employment Statistics" by CHARLES D. STEWART, *Bureau of Labor Statistics*
"Business Financial Statistics" by CAREY P. MODLIN, JR., *Office of Statistical Standards*

2:00–4:00 P.M.

**BUSINESS MEETING—SECTION ON PHYSICAL AND ENGINEERING SCIENCES**

4:00–6:00 P.M.

**APPLICATIONS IN ANALYTICAL CHEMISTRY**
*Section on Physical and Engineering Sciences*

**Chairman:** W. J. YOUDEN, *National Bureau of Standards*

**Papers:** "Flame Photometry Determinations" by B. MULLIGAN, *National Bureau of Standards*
"Interlaboratory Studies" by J. MANDEL, *National Bureau of Standards*

**Discussion:** To be announced

8:00–10:00 P.M.

**STATISTICAL PROBLEMS IN THE EVALUATION OF POLIO VACCINE**
*General Session*

**Chairman:** To be announced

**Speakers:** To be announced

8:00–10:00 P.M.

**LABOR TURNOVER AND HELP WANTED ADVERTISING**
*Business and Economic Statistics Section*

**Chairman:** LEO WOLMAN, *Columbia University*

**Papers:** "Labor Turnover" by EWAN CLAGUE, *Bureau of Labor Statistics*
"National Monthly Help-Wanted Advertising Index" by WILLIAM BERRIDGE, *Metropolitan Life Insurance Co.*

**Discussion:** LEONARD ARNOLD, *Northern Textile Association*
GERHARD BRY, *Rutgers University*
GLADYS L. PALMER, *University of Pennsylvania*
DAVID PINSKY, *Connecticut Dept. of Labor*

## THURSDAY, DECEMBER 29

8:30 A.M. Breakfast — **BUSINESS MEETING—BUSINESS AND ECONOMIC STATISTICS SECTION**

8:30 A.M. Breakfast — **BUSINESS MEETING—SECTION ON TRAINING**

8:30–10:30 A.M. — **OPERATING RATIOS—A STATISTICAL TOOL FOR MANAGEMENT**
*General Session*

**Chairman:** To be announced

**Papers:**
"Basic Similarities in Operating Characteristics of Business" by JULIUS HIRSCH, *Economic Consultant*
"Development, Use and Recent Improvement of Operating Ratios in Distribution and Advertising" by WALTER MITCHELL, JR., *New York City*
"Operating Ratios in Manufacturing and Mining Industries" (Speaker to be announced)

8:30–10:30 A.M. — **RECENT TECHNOLOGICAL CHANGES AND THE SOCIO-ECONOMIC STRUCTURE**
*Social Statistics Section*

**Chairman:** A. J. JAFFE, *Columbia University*

**Papers:**
"Effects of Automation on the Occupational Structure" by RICHARD H. LEWIS, *Bureau of Labor Statistics*
"Energy Consumption, an International Comparison" by NATHANIEL B. GUYOL, *United Nations*
"Cost of Management and Productivity" by SEYMOUR MELMAN, *Columbia University*

**Discussion:** DUDLEY KIRK, *Population Council*
AARON WARNER, *Columbia University*

10:30 A.M.–12:30 P.M. — **A CRITIQUE OF FEDERAL STATISTICAL SERIES: INDEX OF CONSUMER PRICES**
*Business and Economic Statistics Section—American Farm Economic Assn.*

**Chairman:** FREDERICK F. STEPHAN, *Princeton University*

**Papers:**
"What Concepts are Appropriate to Consumer Price Indexes" by IRVING SIEGEL, *Council of Economic Advisers*
A comparison of the BLS Consumer Price Index and the AMS Index of Prices Paid by Farmers for Family Living by LAZARE TEPER, *International Ladies Garment Workers Union*
"Parity Price Indexes and Farm Consumption Expenditures" by RALPH STAUBER, *Dept. of Agriculture*

**Discussion:** LAWRENCE BOGER, *Michigan State University*
HERSEY RILEY, *Bureau of Labor Statistics*
LAURA MAE WEBB, *Office of Statistical Standards*

10:30 A.M.–12:30 P.M. — **TIME SERIES IN THE PHYSICAL SCIENCES**
*Section on Physical and Engineering Sciences*

**Chairman:** J. L. DOLBY, *General Electric Co.*

**Papers:**
"Time Series Analysis in Fluid Dynamics" by L. J. TICK and M. ROSENBLATT, *New York University*
"Frequency Analysis of Human Responses" by E. S. KRENDEL, *Franklin Institute*
"Time Series in Aeronautics" by U. O. LAPPI, *Cornell Aeronautical Laboratories*

10:30 A.M.–12:30 P.M. — **INTERNATIONAL EDUCATION AND TRAINING IN STATISTICS**
*Section on Training*

**Chairman:** STUART A. RICE, *Stuart Rice Associates*

**Papers:**
"The Teaching of Statistics at the University Level: an International Survey" by B. A. LIU, *UNESCO*
"The Work of the Inter-American Statistical Institute" by O. ALEXANDER DE MORAES, *Inter-American Statistical Institute*
"International Statistical Training Activities of the Federal Government" by CALVERT L. DEDRICK, *Bureau of the Census*

12:00 Noon Luncheon — **MEETING OF THE OUTGOING BOARD OF DIRECTORS**
*American Statistical Association*

2:00–4:00 P.M.

**FEDERAL RESERVE BOARD COMMITTEE REPORTS: SAVING STATISTICS AND CONSUMER EXPECTATIONS—I**

*Business and Economic Statistics Section—American Economic Assn.*

**Chairman:** RALPH YOUNG, *Federal Reserve Board*

**Papers:** "Saving Statistics" by RAYMOND GOLDSMITH, *National Bureau of Economic Research*
"Consumer Expectations" by JAMES TOBIN, *Yale University*

**Discussion:** MORRIS COHEN, *National Industrial Conference Board*
GEORGE KATONA, *University of Michigan*

2:00–4:00 P.M.

**STATISTICAL NEEDS FOR ANALYZING THE INTERNATIONAL TRADE AND PAYMENTS SITUATION—I**

*Business and Economics Statistics Section*

**Chairman:** To be announced

**Papers:** "Information Needed to Assess the Economic Well Being of People in the Eastern Hemisphere" by FRANCIS MCINTYRE, *California-Texas Oil Co., Ltd.*
"Petroleum Transactions Between World Areas, 1951" by CORNELIUS J. DWYER, *National Bureau of Economic Research*

**Discussion:** EARL HICKS, *International Monetary Fund*
N. B. GUYOL, *United Nations*

2:00–4:00 P.M.

**SCIENTIFIC RESEARCH AND DEVELOPMENT IN AMERICAN INDUSTRY**

*Social Statistics Section*

**Chairman:** E. D. REEVES, *Esso Research and Engineering Co.*

**Papers:** "A Program of Studies of Scientific Research and Development" by JAMES M. MITCHELL, *National Science Foundation*
"Manpower and Expenditures in Industrial Research and Development" by HELEN WOOD, *Bureau of Labor Statistics*
"Statistical Techniques for Measuring Research and Development" by WALT R. SIMMONS and FRANCES M. WATTENBERG, *Bureau of Labor Statistics*

**Discussion:** DEXTER M. KEEZER, *McGraw-Hill Publications*
HOWARD S. TURNER, *Jones & Laughlin*

2:30–5:30 P.M.

**STATISTICAL INVESTIGATIONS OF REGIONAL STRUCTURE AND REACTIONS**

*Regional Science Assn.—American Statistical Assn.*

**Chairman:** E. T. GRETHER, *University of California*

**Papers:** "Regional Variations in Money, Credit and Interest Rates" by N. WOLLMAN, *University of New Mexico*
"Differential Regional Impact of Federal Expenditures" by ROBERT KAVESH and JAMES JONES, *Dartmouth College*

**Discussion:** ALFRED NEAL, *Federal Reserve Bank, Boston*
SEYMOUR E. HARRIS, *Harvard University*
HARRY SCHWARTZ, *Federal Reserve Bank, San Francisco*
WOLFGANG STOLPER, *University of Michigan*

4:00–6:00 P.M.

**NEW DEVELOPMENTS IN EXPERIMENTAL SOCIAL SCIENCE**

*Social Statistics Section—Institute of Mathematical Statistics*

**Chairman:** FRED L. STRODTBECK, *University of Chicago*

**Papers:** "Monte Carlo Methods in an Experimental Test of an Interaction Model" by DAVID G. HAYS, *The RAND Corp.*
"Some Theoretical Problems of Lexico-Statistics" by MORRIS SWADESH, *Denver, Colorado*
"Mathematical Models for the Empirical Study of Decision-Making" by PATRICK SUPPES, *Stanford University*

**Discussion:** HERBERT SOLOMON, *Columbia University*
LEONARD J. SAVAGE, *University of Chicago*
DAVID R. COX, *University of Cambridge*

4:00–6:00 P.M.

**PRODUCTIVITY: LONG-RUN TRENDS AND SHORT-RUN FLUCTUATIONS**
*Business and Economic Statistics Section—American Economic Assn.*

**Chairman:** RAYMOND T. BOWMAN, *Office of Statistical Standards*

**Papers:** "Productivity Trends: Capital and Labor" by JOHN KENDRICK, *National Bureau of Economic Research*
"Cyclical Changes in Input-Output Relations" by THOR HULTGREN, *National Bureau of Economic Research*

**Discussion:** JAMES KNOWLES, *Joint Committee on The Economic Report*
MILTON LIPTON, *National Industrial Conference Board*

4:00–6:00 P.M.

**DESIGN OF INDUSTRIAL EXPERIMENTS**
*Section on Physical and Engineering Sciences*

**Chairman:** R. J. HADER, *North Carolina State College*

**Papers:** "Applications of Statistics to Tire Testing" by R. D. STIEHLER, *National Bureau of Standards*
"Analysis of Factorial $2^n$ Experiments" by ALAN BIRNBAUM, *Columbia University*

**Discussion:** R. L. ANDERSON, *North Carolina State College*

4:00–6:00 P.M.

**WHAT BUSINESS EXPECTS FROM OPERATIONS RESEARCH**
*Business and Economic Statistics Section*

**Chairman:** FRANCIS MCINTYRE, *California-Texas Oil Co., Ltd.*

**Papers:** "What Business Expects from Operations Research" by MELVIN L. HURNIE, *General Electric Co.*
"Applications of Operations Research" by WELDON GIBSON, *Stanford University*

**Discussion:** DAVID NOVICK, *RAND Corporation*
ANDREW SCHULTZ, *Cornell University*

8:00 P.M.

**PRESIDENTIAL ADDRESS—RALPH J. WATKINS**
*General Session*

9:30 P.M.

**INFORMAL PARTY**

## FRIDAY, DECEMBER 30

8:30–10:30 A.M.

**USE OF DECISION FUNCTION THEORY IN ENGINEERING**
*Section on Physical and Engineering Sciences*

**Chairman:** CUTHBERT DANIEL, *New York City*

**Papers:** "Decision Theory Aspects in the Design and Analysis of Engineering Experiments' by P. GUNTHER and J. A. ZOELLNER, *General Electric Co.*
"A Three Decision Problem Concerning the Mean of a Normal Distribution" by R. E. BECHHOFER, *Cornell University*
"A Sequential Procedure for Selecting the Best of Several Exponential Populations" by M. SOBEL, *Bell Telephone Laboratories*

8:30–10:30 A.M.

**PRODUCTIVITY: PROBLEMS AND METHODS OF MEASUREMENT**
*Business and Economic Statistics Section*

**Chairman:** ROBERT W. BURGESS, *Bureau of the Census*

**Papers:** "Measuring Short-Run Changes in Output per Man-Hour: Methods, Problems and Findings" by LEON GREENBERG, JACK ALTERMAN and ALLEN SEARLES, *Bureau of Labor Statistics*
"Problems of Using Monthly Production Indexes to Measure Changes in Output per Man-Hour" by LORMAN C. TRUEBLOOD, *Board of Governors of Federal Reserve System*

**Discussion:** GEORGE P. HITCHINGS, *Ford Motor Co.*
KATHERINE P. ELLICKSON, *Congress of Industrial Organizations*

**Friday, Dec. 30**

8:30–10:30 A.M.

**FEDERAL RESERVE BOARD COMMITTEE REPORTS: INVENTORY STATISTICS, INVESTMENT EXPECTATIONS, GENERAL BUSINESS EXPECTATIONS—II**
*Business and Economic Statistics Section—American Economic Assn.*

**Chairman:** MARTIN R. GAINSBRUGH, *National Industrial Conference Board*

**Papers:** "Investment Expectations" by GEORGE TERBORGH, *Machinery & Allied Products Institute*
"Inventory Statistics" by J. FREDERICK DEWHURST, *Twentieth Century Fund*

**Discussion:** JOHN W. LEHMAN, *Joint Committee on the Economic Report*
ROBERT EISNER, *Northwestern University*
Others to be announced

10:30 A.M.–12:30 P.M.

**SPECIAL PROGRAMS FOR TEACHING EXPERIMENTAL STATISTICS TO SCIENTISTS**
*Section on Training*

**Chairman:** GLENN L. BURROWS, *Dept. of Agriculture*

**Papers:** "Gordon Conference" by LEE CRUMP, *University of Rochester*
"Special Training Arranged by Local Sections of American Chemical Society" by W. J. YOUDEN, *National Bureau of Standards*
"Foreign Programs" by GERTRUDE COX, *North Carolina State College*
"Statistical Symposia for Biological Scientists" by E. L. LECLERG, *Dept. of Agriculture*
"ASQC Training Courses in Experimental Statistics" by MAX ASTRACHAN, *U. S. Air Force*
"Storrs Conference" by J. W. TUKEY, *Princeton University*

**Discussion:** PAUL G. HOMEYER, *Iowa State College*
EDWIN G. OLDS, *Carnegie Institute of Technology*

10:30 A.M.–12:30 P.M.

**STATISTICAL NEEDS FOR ANALYZING THE INTERNATIONAL TRADE AND PAYMENTS SITUATION—II**
*Business and Economic Statistics Section*

**Chairman:** J. EDWARD ELY, *Bureau of the Census*

**Papers:** "Inventory Fluctuations and U. S. Imports" by EDWARD MARCUS, *Brooklyn College*
"The Role of Middleman Transactions in World Trade" by ROBERT LICHTENBERG, *National Bureau of Economic Research*

**Discussion:** WILLIAM BUTLER, *Chase Manhattan Bank*
BORIS SWERLING, *Stanford University*

10:30 A.M.–12:30 P.M.

**METHODOLOGY OF STUDYING MOTIVATION**
*Social Statistics Section—Institute of Mathematical Statistical*

**Chairman:** FREDERICK MOSTELLER, *Harvard University*

**Papers:** "Some Statistical Aspects of the *Q* Technique" by R. R. BAHADUR and D. L. WALLACE, *University of Chicago*
"Projective Measurement of Sexual Motivation" by RUSSELL A. CLARK, *University of Michigan*
"Industrial Mobility of Labor As a Probability Process" by ISADORE BLUMEN, MARVIN KOGAN, and PHILIP MCCARTHY, *Cornell University*

**Discussion:** WILLIAM STEPHENSON, *Greenwich, Conn.*
ANDREW BAGGALEY, *University of Wisconsin*
LEO GOODMAN, *University of Chicago*

10:30 A.M.–12:30 P.M.

**PUTTING CENSUS TRACTS TO WORK**
*General Session*

**Chairman:** HOWARD WHIPPLE GREEN, *Cleveland Health Council*

**Papers:** "How the Retailer Uses Census Tracts" by SIDNEY COHEN, *The Hecht Co.*
"Census Tract Data Used in Urban Renewal Studies in Philadelphia" by WILLIAM RAFSKEY, *Housing Coordinator, Philadelphia*
"Census program for Central Business Districts" by HARVEY KAILIN, *Bureau of the Census*

**Discussion:** DONALD R. G. COWAN, *University of Michigan*
HARLIN G. LOOMER, *Philadelphia City Planning Commission*

12:00 Noon Luncheon — **MEETING OF THE INCOMING BOARD AND COUNCIL**
*American Statistical Association*

12:30 P.M. Luncheon — **1955 CENSUS TRACT CONFERENCE**
*General Session*

**Chairman:** HOWARD WHIPPLE GREEN, *Cleveland Health Council*

**Papers:**
"City Annexations and Their Effect on Tract Boundaries" by WILBUR E. MCCANN, *Los Angeles Chamber of Commerce*
Role of Local Census Tract Committees in Census Bureau Programs by C. E. BATSCHELET, *Bureau of the Census*
"Measuring Family Cohesion with the Aid of Census Facts by Tracts" by ISIDOR CHEIN, *New York University*
"The Use of Census Tracts in Studies in Gerontology" by BERNARD KUTNER, *Cornell University Medical College*
"Using Census Tracts in Epidemiology" by ELEANOR S. MACDONALD, *M. D. Anderson Hospital, Houston*
"Recent Developments in the Use of Census Tracts in the Community" (Speakers to be announced)

2:00–4:00 P.M. — **CONTRIBUTED PAPERS—I**
*Business and Economic Statistics Section and Social Statistics Section*

**Chairman:** To be announced

**Speakers:** To be announced

2:00–:400 P.M. — **CONTRIBUTED PAPERS—II**
*Biometric Section and Section on Physical and Engineering Sciences*

**Chairman:** BOYD HARSHBARGER, *Virginia Polytechnic Institute*

**Papers:**
"Sampling Distributions When the Sample is Drawn from a Finite Normal Population" by ANDRE G. LAURENT, *Michigan State University.*
"On the Consistency of Subjective Ratings" by J. E. FREUND and A. N. POZNER, *Virginia Polytechnic Institute.*
"Maximum Likelihood Estimators of the Parameters of a Trivariate Normal Population from Incomplete Data" by GEORGE L. EDGETT, *Queen's University.*
"The Derivation and Use of an Alternative to the Analysis of Variance" by M. C. K. TWEEDIE, *Virginia Polytechnic Institute.*
"The Comparison of the Sensitivities of Experiments Using Different Scales of Measurement" by D. E. W. SCHUMANN, *Virginia Polytechnic Institute.*

4:00–6:00 P.M. — **(CONTRIBUTED PAPERS—III**
*Biometric Section and Section on Physical and Engineering Sciences*

**Chairman:** GEORGE L. EDGETT, *Queen's University*

**Papers:**
"Applicability of Distribution—Free and Other Simplified Statistics in Medical Research and Biometry" by RICHARD D. REMINGTON, *University of Oregon and Montana State University.*
"Errors Associated with Process Adjustments" by R. A. FREUND, W. G. HOWE, and J. E. JACKSON, *Eastman Kodak Company.*
"On the Power of Multiple Range Tests" by R. LOWELL WINE, *Virginia Polytechnic Institute.*
"The Introduction of Risk into a Programming Model" by R. J. FREUND, *Virginia Polytechnic Institute.*
"Theoretical Considerations Incident to the Construction of an Uphill Truck Lane or Passing Bay in a Mountainous Area" by JAMES P. GEORGE, *C. B. Caldwell Associates.*

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# QUESTIONS AND ANSWERS

*Edited by ERNEST RUBIN*
*U. S. Department of Commerce*
*and American University*

## Reconstruction of Historical Statistics*

Discussion by *SHIRLEY DUNGEE*

The field of historical statistics constitutes a special area of investigation although it has seldom been treated as such. Since research in economics and in the social sciences frequently utilizes historical statistics, a systematic analysis of the problems of this type of data would be very worthwhile. Standard textbooks in statistics or in research methods of the social sciences briefly mention certain difficulties and limitations of historical statistical data. These texts, however, are able to give only general cautionary axioms of scientific practice when dealing with this area.

Problems in historical statistics are numerous, and, unfortunately, space does not permit an adequate discussion of each type. For the present purpose my remarks will be confined to the problem of reconstructing certain historical statistics when partial information in a parameter sense is known and when the primary documents are still available for sampling purposes. The results of a statistical experiment that was undertaken at my direction a few years ago will be discussed by Mrs. Dungee.

The Census of 1850 was the first to ascertain the total number of foreign born in the United States. The tabulation of this information was made possible because one of the Census questions called for place of birth. Prior to 1850 the Census did not require this information. When the tabulations of 1850 were prepared, the Census counts gave total foreign born, by sex, nativity and state. Information about age distribution, occupation, literacy, etc., was tabulated for the total population but not for the foreign born, although these data are available from the original Census schedules. The total population of the United States in 1850 was 23.2 million; the total white population was 19.6 million, of which the foreign-born white amounted to 2.2 million.

For various purposes, it is desirable to obtain some of the tabulations that were omitted in the 1850 Census. Obviously it is not feasible or economic to prepare 23 million punch cards and then obtain the cross-tabulations we want. Does this mean that this historical information must be permitted to disintegrate since these documents eventually deteriorate to the point of being statistically unusable? Or is it possible by some statistical technique, such as random sampling, to obtain valid estimates of the foreign-born distributions? It is understood that the sampling would be made using the appropriate parameter information already available.

In 1950 Mrs. Shirley Dungee of the Bureau of the Census was a student of mine at American University. As a project for the course, Mrs. Dungee undertook to examine and to sample the original Census schedules of 1850 which now repose in the National Archives in Washington. The purpose of the study was to indicate how certain historical statistics of the foreign born might be developed. I wish to thank Mrs. Dungee for preparing the following discussion.

Data for this sample were taken from the original handwritten schedules of the 1850 Census. The area embraced by the sample is Albany County, New York, which had a total population of 93,279. Information for this county is contained in three bound volumes of Census schedules.

Each printed schedule consists of forty-two vertically numbered lines for entries of persons, and thirteen horizontally ordered columns for information. These columns are labelled as follows:

1. Dwelling houses numbered in order of visitation.
2. Families numbered in order of visitation.
3. The name of every person whose usual place of abode on the first day of June, 1850 was in this family.
4. Age.
5. Color—White, Black, or Mulatto.
6. Sex.
7. Profession, occupation, or trade of each male person over 15 years of age.
8. Value of Real Estate owned.
9. Place of birth, naming the State, Territory, or Country.
10. Married within the year.
11. Attended school within the year.
12. Persons over 20 years of age who cannot read and write.
13. Whether deaf and dumb, blind, insane, idiotic, pauper, or convict.

Using the tenth entry on each even numbered page, 1,116 cards were prepared showing all available information for sex, color, age, profession, and place of birth. Because of the very small number of non-whites in the

* I am indebted to Mr. Morris B. Ullman of the Bureau of the Census for advice concerning problems in historical statistics. The views expressed in this discussion, however, are those of the Authors and do not necessarily reflect the views of the Census Bureau.

TABLE 1

*Tally Sheet Showing Number of Male Persons by Age and Nativity in Sample from the 1850 Census*

| Age in Years | Place of Birth | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ireland | Germany | England | Canada | Scotland | Wales | France | Isle of Man | Holland | Poland | United States | Total for. born | Grand total |
| Under 10 | 12 | 9 | 1 | 1 | 2 | — | 1 | — | — | — | 120 | 26 | 146 |
| 10–19 | 10 | 12 | 7 | — | 1 | 2 | 1 | — | — | — | 89 | 33 | 122 |
| 20–29 | 43 | 23 | 6 | 6 | 1 | 1 | 1 | — | — | — | 60 | 81 | 141 |
| 30–39 | 27 | 17 | 3 | 3 | 2 | — | 2 | — | — | — | 47 | 54 | 101 |
| 40–49 | 17 | 9 | 4 | — | 1 | 1 | 1 | — | 1 | — | 40 | 34 | 74 |
| 50–59 | 5 | 5 | 4 | — | 1 | 2 | 2 | 1 | — | — | 18 | 20 | 38 |
| 60–69 | 4 | 1 | — | 1 | — | — | 3 | — | — | — | 9 | 9 | 18 |
| 70–79 | 2 | — | — | — | — | — | 1 | — | — | — | 3 | 3 | 6 |
| 80–89 | 1 | — | 1 | — | — | — | — | — | — | — | — | 2 | 2 |
| Total | 121 | 76 | 26 | 11 | 8 | 6 | 12 | 1 | 1 | — | 386 | 262 | 648 |
| Median age | 28.5 | 27.3 | .. | .. | .. | .. | .. | .. | .. | .. | 18.1 | 28.9 | 23.9 |

Source: Original Schedules of the 1850 Population Census.

TABLE 2

*Tally Sheet Showing Number of Female Persons by Age and Nativity in Sample from the 1850 Census*

| Age in Years | Place of Birth | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ireland | Germany | England | Canada | Scotland | Wales | France | Isle of Man | Holland | Poland | United States | Total for. born | Grand total |
| Under 10 | 7 | 4 | 5 | 2 | 1 | — | — | — | — | — | 128 | 19 | 147 |
| 10–19 | 16 | 10 | 4 | — | 1 | — | 3 | — | 1 | 1 | 75 | 36 | 111 |
| 20–29 | 38 | 6 | 5 | 1 | 5 | — | 2 | — | — | — | 73 | 57 | 130 |
| 30–39 | 15 | 8 | 3 | 1 | 2 | — | 2 | — | — | — | 41 | 31 | 72 |
| 40–49 | 17 | 5 | 2 | 1 | 1 | — | 1 | — | — | — | 42 | 27 | 69 |
| 50–59 | 6 | 1 | 2 | — | — | — | — | — | — | — | 30 | 9 | 39 |
| 60–69 | 2 | 2 | — | 1 | — | — | 1 | — | — | — | 12 | 6 | 18 |
| 70–79 | 1 | — | — | — | — | — | — | — | — | — | 8 | 1 | 9 |
| 80–89 | — | — | — | — | — | — | — | — | — | — | 2 | — | 2 |
| Total | 102 | 36 | 21 | 6 | 10 | — | 9 | — | 1 | 1 | 411 | 186 | 597 |
| Median age | 27.6 | 26.6 | .. | .. | .. | .. | .. | .. | .. | .. | 20.3 | 26.6 | 23.1 |

Source: Original Schedules of the 1850 Population Census.

population of Albany County, none appeared in the sample.

After compiling these data it was found that the foreign born in Albany County were predominantly Irish. In order to obtain a sample that would reflect more accurately the nativity distribution of the foreign born in the United States as shown in the Census tabulations, a random sample of an additional 130 foreign born was obtained from the data of Oneida County in New York. This sample was added to the larger sample.

The sample material has been arranged and tabulated, and to the extent feasible, subjected to various statistical tests. The tabulated results are set forth in Tables 1 and 2.

Table 3 shows the percentage distribution of the foreign born in the United States in 1850 and the percentage distribution of the foreign born in the sample.

TABLE 3

*Percentage Distribution of the Foreign Born During 1850*

| Place of Birth | Sample Figures | | Census Figures | |
|---|---|---|---|---|
| | No. of persons | Percent | No. of persons | Percent |
| Ireland | 223 | 50 | 961,719 | 44 |
| Germany | 112 | 25 | 573,225 | 26 |
| England | 47 | 10 | 278,675 | 13 |
| Canada | 17 | 4 | 147,711 | 7 |
| Scotland | 18 | 4 | 70,550 | 3 |
| France | 21 | 5 | 54,069 | 3 |
| All other | 10 | 2 | 124,890 | 4 |
| Total | 448 | 100 | 2,210,839 | 100 |

Source: Tables 1 and 2.

The population of the United States in 1850 consisted of 10,026,377 males of which 1,239,434 were foreign born, and 9,526,691 females of which 1,001,001 were foreign born. Thus the total population consisted of 51 percent males and the foreign born population consisted of 55 percent males. Table 4 gives the comparison between the sample and universe sex ratios.


SUMMARY

Parameter values for the population of 1850 were available for the percentage distribution of the foreign born, the percentage distribution of sexes for both the total population and the foreign born population, and the average age of the total population. A comparison of parameters and corresponding sampling statistics is given in Table 5.


TABLE 4

*Sex Ratio of the Population of the United States, from Sampling Data 1850*

| Nativity | Total Both Sexes | Male | Female | Males per 100 Females |
|---|---|---|---|---|
| Native | 797 | 386 | 411 | 94 |
| Foreign born | 448 | 262 | 186 | 141 |
| Total | 1,245 | 648 | 597 | 108 |

Source: Tables 1 and 2

TABLE 5

*Comparison of Parameters and Statistics*

| Items Tested | Parameter | Statistic |
|---|---|---|
| Percent of | | |
| Irish | 44 | 50 |
| German | 26 | 25 |
| English | 13 | 10 |
| Canadian | 7 | 4 |
| Scotch | 3 | 4 |
| French | 3 | 5 |
| Males in U. S. in 1850 | 51 | 51 |
| Foreign born males in U. S. in 1850 | 55 | 58 |
| Average age of persons in U.S. in 1850 | 25 | 26 |

## DIFFUSION INDEXES

Continued from page 17

gain is cut in half. Some experimental work now going forward may make it possible to increase this gain.

Taken together, the various "current" indexes shown in the chart illustrate an important principle. Individual index numbers are fallible, but they are also, to a degree, consilient. Diffusion indexes are no exception. Consequently it is well to be guided by a number of them rather than any single one. Armed with a workable set of diffusion indexes covering different economic sectors and utilizing various techniques,[7] the analyst may eventually be able to make judgments on the scope of current movements that will not only stand the test of history but actually assist him in his appraisal of future prospects.

This assistance, I may add, may not come in the form of specific quantitative forecasts of the levels that will be reached by specific economic aggregates on specific future dates. It may merely serve to confirm or to modify some judgments or assumptions that he had already formulated on the basis of other information. Or it may be helpful only when there is an extended period of uncertainty as to the direction of business trends. There is room for many contributions of these varied kinds to the problem of business forecasting and my guess is that students of diffusion indexes will make their share of them as we learn more about how to construct and interpret them. Although they may not enable us to take the whole measure of the business cycle, it is challenging, at least, to have another dimension to work with.

[7] See Charts 1-3 in the Thirty-fifth Annual Report of the National Bureau of Economic Research (May 1955).

# *NEWS ABOUT MEMBERS*

**Quincy Adams** has transferred from the Central Intelligence Agency to an economist post with the Federal Trade Commission.

**Howard N. Agranat, (Lt.) USAF,** is stationed at Mitchel Air Force Base, New York. He is assigned to Headquarters, Continental Air Command, Directorate of Statistical Services and is the Director of the Reports Control Division.

**George H. Allen,** Vice President of Mass Market Publications, Inc. since January, 1953, has been elected President. Mass Market Publications publishes the magazine "Better Living" distributed through super-markets.

**Elliot F. Beideman,** formerly a member of the Technical Staff, Hughes Research and Development Laboratories, has been appointed Head of the Marketing Research Office, Hughes Aircraft Company, Culver City, California. In addition, he has been elected a member of the West Coast Council of Marketing Research Directors.

**Richard Berger,** Sales Analyst for the Dyestuff and Chemical Division, General Aniline and Film Corporation, New York City, received his Ph.D degree in Business Administration and Marketing from the New York University Graduate School of Business Administration on June 15, 1955. In addition to his position at General Aniline and Film Corporation, Dr. Berger is also an instructor in the evening divisions of both Rutgers University and the City College of New York.

**Ernest F. Billeter** will become scientific collaborator with the Bank for International Settlements in Basle, Switzerland on November 1st.

**William E. Bradford,** Bureau of the Census, is on a two-year assignment with the U. S. Operations Mission in Lima, Peru, where he will serve as statistical and census adviser to the Peruvian Government.

**Elmer C. Bratt** was awarded an honorary Doctor of Laws degree at the June 13 Commencement at the University of Nebraska. He will spend the year 1955–56 in Ceylon on a Fulbright grant in making an evaluation of Ceylon's rural development program, and he will also travel in the Far East, India, and Europe.

**James L. Broughal, Jr.** is now with the Development Division, Research Department, Curtis Publishing Company, in Philadelphia.

**Edward C. Bryant** received a Ph.D degree in Statistics in June, 1955 from the Department of Statistics, Iowa State College, his thesis being entitled "An Analysis of Some Two-Way Stratifications." Dr. Bryant is Chairman of the Department of Statistics at the University of Wyoming.

**Glenn L. Burrows,** statistical consultant in the Statistical Clearance and Standards Office, Agricultural Marketing Service, USDA, was on leave to teach a course in sampling in the summer session at the University of Florida.

**Arnold Chase,** recently with the Department of Defense and previously Assistant Chief of the Division of Construction Statistics, has returned to the Bureau of Labor Statistics as Chief of the Division.

**Irma J. Coons** is now employed with the Statistical Group of the Materials Engineering Department, Westinghouse Electric Corp., Pittsburgh, Pennsylvania. She received an M.S. degree with Statistics major in June, 1955 in the Department of Statistics, Iowa State College.

**John Cover,** Director of the Bureau of Business and Economic Research, College of Business and Public Administration, University of Maryland, will be associated with the Asia Area Study with headquarters at the University of California, Berkeley, for the year 1955–56.

**Harvey F. Dingman** is now employed as a Research Psychologist by the Personnel Research Branch, The Adjutant General's Office, Department of the Army, Washington, D. C. He formerly was a teaching assistant at the University of Southern California where he received his Ph.D. in Psychology in March.

**Robert Dorfman,** formerly Associate Professor of Economics, University of California, Berkeley, is now Associate Professor of Economics at Harvard University.

**Lawrence H. Finley** is now Assistant Controller in Gimbel's Department Store in Pittsburgh, Pennsylvania.

**Frank Freeland,** formerly Statistical and Budget Director for the Hawaiian Telephone Company in Honolulu, is now employed as Financial Administrator in the administration of the Trust Territory of the Pacific Islands, by the U. S. Department of the Interior.

**Rudolf J. Freund** has joined the staff of the Department of Statistics as Associate Professor at the Virginia Polytechnic Institute. Dr. Freund will do both teaching and research.

**Ronald M. Gardner,** formerly with the National Income Division, Department of Commerce, has joined the staff of the Division of Programs and Reports, Bureau of Federal Credit Unions, Social Security Administration, where he will work on the development of the Bureau's statistical reporting program.

**Maurice I. Gershenson,** Chief of the Division of Labor Statistics and Research, California Department of Industrial Relations, has been appointed chairman of the Committee on Statistics of the International Association of Industrial Accident Boards and Commissions.

**Seymour Geisser,** formerly a Research Assistant at the University of North Carolina, has joined the Applied Mathematics Division of the National Bureau of Standards where he will serve on the staff of the Statistical Engineering Laboratory.

**Albert Ginsberg** is now employed by the Lincoln Project of the Massachusetts Institute of Technology as a mathematician.

**James E. Grizzle, USA,** is stationed at Aberdeen Proving Grounds, and his duty assignment is with Ballistic Research Laboratories.

**William C. Healy, Jr.,** formerly with the General Electric Company, has completed work for the Ph.D. in Statistics at the University of Illinois, and has joined the Research Laboratories of the Ethyl Corporation, Detroit, as a statistician.

**George A. Hermanson** of the Bureau of Labor Statistics has returned from an assignment with the BLS Productivity Measurement Team in Paris.

**Donald R. Hill,** a statistician in the Tape Quality Control Department, Minnesota Mining & Manufacturing Co., St. Paul, was awarded the degree of Master of Science with Statistics major in the spring quarter of 1955 by the Department of Statistics, Iowa State College.

**John R. Hills** was granted a Ph.D. degree in Psychology from the University of Southern California. He plans to continue his present employment in the Personality Research Group of the Educational Testing Service at Princeton.

**John F. Hofmann,** Chief Statistician of the Naval Ordnance Laboratory at Corona, California, was granted a Ph.D.

degree in Statistics by Iowa State College in June, 1955. His dissertation concerned "Life Testing in Controlled Environmental Conditions."

**Nejat K. Iren,** formerly advisor and expert for surveys of the Central Statistical Office in Ankara, is now economic and statistical advisor at Garanti Bankasi, Istanbul and is teaching statistics at the Press College of Istanbul, Turkey.

**Thomas B. Jabine,** formerly a mathematical and survey statistician with the Population and Transportation Divisions, Bureau of the Census, has taken an assignment as an analytical statistician consultant with the Institute of Inter-American Affairs in Rio de Janeiro, Brazil. He will work in the fields of vital and health statistics.

**Hyman B. Kaitz,** Bureau of Employment Security, U. S. Dept. of Labor, has been named Acting Chief of the Division of Actuarial and Financial Services.

**R. W. Kennard** received a Ph.D. degree from Carnegie Tech in June and is now with the Engineering Department of E. I. duPont de Nemours as a consulting statistician.

**Nathaniel R. Kidder,** formerly Division Manager of the Jones and Lamson Machine Company, has accepted a position as Vice President and Director of Marketing Operations, Technical Marketing Associates, Inc., Concord, Mass.

**William Knobler, USA,** is now stationed at Aberdeen Proving Ground, Aberdeen, Maryland, where he is doing statistical research in the Operations Office of the Ordnance School. He is concerned with research aimed at improving curriculum, teaching methods, and testing procedure within the Ordnance School.

**Truman L. Koehler** is taking leave of absence from Sylvania Electric Products, Inc. to do a year of graduate work in Applied Statistics at Rutgers University.

**Robert Boyd Ladd** has resigned from the Statistics Division of the Operations Research Office, Johns Hopkins University, to become Research Manager, Department of Industrial Economics, of the Southwest Research Institute in San Antonio, Texas.

**Richard O. Lang,** who has been on loan to the Foreign Operations Administration as Deputy Director of the Office of Industrial Resources, is now Regional Director, International Division, S. C. Johnson & Son, Inc., with responsibility for operations in Europe, the Near East, and Africa. Prior to coming to Washington, he was Economist and Business Research Manager of S. C. Johnson & Son, Inc.

**Lonnie Lasman,** who recently received a Masters degree in Statistics from the University of Minnesota, is now a graduate assistant and candidate for the Ph.D. degree at North Carolina State College.

**Marvin Lavin,** formerly of the Aircraft Division, The RAND Corporation, has joined the firm of Caywood-Schiller, Associates, which offers operations research services.

**Dietrich L. Leonhard,** formerly with Oscar Mayer & Co., Madison, Wisconsin, is now Director of Market Research, Tidy House Products Company in Shenandoah, Iowa.

**Garnett A. Lester,** formerly regional research analyst with the Social Security Administration in Chicago, has transferred to the Departmental Office as Assistant Chief of the Assistance Analysis Branch, Division of Program Statistics and Analysis, Bureau of Public Assistance.

**Jerome Mark** has been made Acting Chief of the Branch of Plant Level Studies, Division of Productivity and Technological Developments, Bureau of Labor Statistics

**James J. Maslowski** has been appointed Assistant Professor of Sociology at Southern Illinois University. He will be teaching courses in Industrial Sociology, Population, Demography, Research Methods, and Human Ecology. He will also be offering courses in Survey and Sampling designs, as well as a basic Social Statistics course at a later date.

**Richard E. Matson,** formerly Quality Control Engineer for the Saginaw Steering Gear Division, is now a statistician and analyst for the Delco Radio Division, General Motors Corp., Kokomo, Indiana.

**Robert McCauley** has transferred from the Oklahoma State Statistician's Office to the Feed Grains and Hay Crops Section of the Agricultural Estimates Division, Agricultural Marketing Service, in Washington.

**John S. McGuinness** has joined the Allstate Insurance Company in the Product Development and Pricing Department at the home Office, Skokie, Illinois.

**Richard B. McHugh** has been promoted to Associate Professor at Iowa State College. He holds a joint appointment in the Department of Psychology and the Department of Statistics.

**J. E. Morton** has resigned from Cornell University to join the staff of the National Science Foundation, Washington, D. C., as Chief Statistician and Head of the Office of Special Studies.

**Thomas F. Mosimann,** Chief of the Branch of International Technical Cooperation, Division of Foreign Labor Conditions, Bureau of Labor Statistics, has been designated to serve also as Assistant Chief of the Division.

**Gottfried E. Noether** of Boston University has been promoted to Associate Professor.

**Edward B. Olds,** formerly with the Adult Education Association of the U.S.A. and the Social Planning Council in St. Louis, has been appointed Research Director of the Baltimore Council of Social Agencies.

**William H. Peckham** joined the Missile Manufacturing Division of Hughes Aircraft Company at Tucson, Arizona last January as Section Head, Financial Statistics and Reports.

**Robert Perloff** has resigned from his position as Chief, Statistical Research and Consultation Unit of the Personnel Research Branch, Department of the Army, to accept an appointment as Director of Research for the Research Department of Science Research Associates in Chicago.

**E. W. Pike,** formerly of Raytheon Manufacturing Company, has joined the staff of Lincoln Laboratory, Massachusetts Institute of Technology.

**Don C. Price** has been employed since December, 1954 in the Engineering Department of the Goodyear Aircraft Corporation, Akron, Ohio.

**Lloyd A. Prochnow** of the Division of Foreign Labor Conditions, Bureau of Labor Statistics, has left on a four-month assignment to advise the government of the Republic of El Salvador on the development of a program of labor statistics.

**Morton S. Raff,** formerly of the Highway Transport Research Branch of the Bureau of Public Roads, has joined the staff of the Office of Statistical Standards, Bureau of Labor Statistics, as a mathematical statistician.

**Barbara B. Reagan** has resigned as a home economist in the Human Nutrition Research Branch, Agricultural Research Service, USDA, and will move to Dallas.

**Sidney C. Reagan** has resigned from the Oils and Peanuts Division, Commodity Stabilization Service, USDA, to join the faculty of the School of Business Administration of Southern Methodist University in Dallas.

**Stuart A. Rice,** formerly Assistant Director of the Bureau of the Budget for Statistical Standards, and **Libert Ehrman,** formerly Chief, Safety Analysis, Civil Aeronautics Administration, have established a new firm, bearing the name Stuart Rice Associates, in Washington, D. C. Their offices are located at 1129 Vermont Avenue, Washington 5, D. C.

**H. E. Riley,** formerly Chief of the Division of Construction Statistics, Bureau of Labor Statistics, has been named Deputy Chief of the Division of Prices and Cost of Living.

**Aaron S. Sabghir**, formerly with the Business Division of the Bureau of the Census, has joined the staff of the Construction Statistics and Economics Branch, Building Materials and Construction Division of the Business and Defense Services Administration, Department of Commerce.

**William T. Sackett, Jr.,** is now manager of research for Kuhlman Electric Company, manufacturers of power, distribution and instrument transformers, and electric furnaces.

**Fred H. Sanderson,** Chief of the Regional Economic Staff, Division of Research for Western Europe, Department of State, has been given a Rockefeller Public Service Award. He will study the economic effects of the European coal and steel community.

**Louis Shere,** Professor of Public Finance at the University of Indiana, has returned to the Council of Economic Advisers to work in the field of public finance.

**Marvin Shapiro** is now an assistant mathematician in the Numerical Analysis section of the RAND Corporation in Santa Monica, California.

**Richard H. Shaw** is now employed as a Quality Control Engineer with General Dry Batteries, Inc.

**Peyton Stapp,** Assistant Chief of the Office of Statistical Standards, Bureau of the Budget, is leaving to spend a year in Manila as statistical adviser to the Philippine Government in organizing its statistical programs. He will be Chief of an International Cooperation Administration (formerly FOA) Statistical Party, administered by the Office of the Coordinator, International Statistics, of the Census Bureau.

**James C. Terrell** is now a statistician with the Georgia State Health Department.

**William J. Thomas,** Associate Professor of Statistics and Economics at Baylor University, is now also the Director of the Bureau of Business and Economic Research.

**Jay T. Wakeley** left the U. S. Air Force Operations Analysis Office in Albuquerque, New Mexico in November, 1954, to accept the position of Mathematician in the Missiles Division of the RAND Corporation, Santa Monica, California. His present activity is in the field of Systems Analysis.

**Oscar Weigert** has been appointed Special Assistant to the Commissioner, Bureau of Labor Statistics, to act for the Office of the Commissioner in coordinating economic and statistical data received by the Department of Labor from the United Nations, its various committees, the International Labor Office, and other specialized agencies concerned with labor affairs.

**Francis Joseph Weiss,** scientific consultant on food and nutrition, has left for Managua to join the United States Operations Mission to Nicaragua. Dr. Weiss will assist the Nicaraguan Government in the development of agriculture and natural resources.

**Charles F. Westoff** is now Research Associate with the Office of Population Research, participating in the planning of a new large-scale longitudinal study of social and psychological factors affecting fertility.

**Janet L. Wile,** formerly in the Division of Productivity and Technological Development, Bureau of Labor Statistics has resigned to accept a position as assistant to Ben Lipstein, Technical Director, Audits and Surveys, a market research firm in New York City.

**Josephine J. Williams** is working at the Federation Employment and Guidance Service in New York City on a survey of employment practices.

**R. Lowell Wine** has joined the staff of the Department of Statistics of the Virginia Polytechnic Institute as Associate Professor. Dr Wine, who received his Ph.D. in Statistics at V.P.I., will do both teaching and research.

**Professor George Findlay Shirras,** distinguished British economist, died of a heart attack on June 23rd, while flying to attend the international statistical conferences in Brazil. Professor Shirras had served as Director of Statistics to the Government of India from 1914 to 1921 and had held other positions with the British and Indian Governments. He was the author of several books on public finance and economics, and had taught at American, British, Irish and Indian universities. He was a member of the American Statistical Association, and the International Statistical Institute.

# CHAPTER NOTES

## Albany

The Albany Chapter closed an active season with a business meeting at which officers for the coming year were elected. A change in the constitution, also effected then, provides for separate offices of Secretary and Treasurer instead of combining these functions in one person. The new officers are:

President—ABBOTT S. WEINSTEIN
Vice-President—SYLVIA L. PARKER
Secretary—ELIZABETH H. CHRISTEN
Treasurer—BASIL Y. SCOTT

The program for the year included the annual conference, described elsewhere in this issue, two seminars, three general meetings and two business meetings. One of the business meetings was to hear and discuss the brief prepared by the salary committee for upward revision of New York State statisticians' salaries. A few copies of this brief are available for chapters involved in salary negotiations.

The two seminars covered a general presentation of the subject of quality control by Julien Green of the General Electric Corporation and of analysis of variance by Alfred Basch of the New York State Department of Commerce, with a discussion period following in each case.

The subjects and speakers of the general meetings not previously reported were: "Multiple Decision Procedures", Dr. Lee Crump of the Atomic Energy Research Project at the University of Rochester; "The Relation Between Smoking and Lung Cancer", Dr. Morton Levin, New York State Department of Health; and "Are Stock Prices too High?", Seymour Pearlman of Sutro Brothers, stock brokers, and Melville Arnstein of the New York State Department of Public Service.

## Boston

The following persons were elected to office on June 2nd:

President—JOHN E. ALMAN
Vice-President—DR. E. W. PIKE
Treasurer—EUGENE E. BURLINGAME
Secretary—RUTH S. BRUSH

## Buffalo-Niagara

The April 25, 1955 meeting was held in cooperation with the Buffalo Section of the American Society for Quality Control. The speaker for the meeting was Dr. W. J. Youden of the National Bureau of Standards. The topic discussed was "Statistical Application in the Chemical Industries". The main point stressed by Dr. Youden was that the fundamental job of the statistician is to design an experiment in such a way so as to learn something and to prevent decision makers from deceiving themselves with data collected in an unsound manner. Because experiments cost time and money, the statistician should learn to recognize cases in which modern designs may be used. Too many jobs are lost because the statistician suggests methods which may have worked in the old days of experimentation in agriculture, but which are too costly in money and time for industry. Modern industry requires modern designs of experiments.

The May 14, 1955 meeting was an all-day session. In the morning there were four papers on the role of statistics in decision making. Edward Delate, I. E. duPont de Nemours and Co., spoke on "A Statistical Approach to Production Decisions". Mr. Delate showed how experimental designs which work well in production may also be applied to marketing research. Dr. A. Lilienfeld of the Roswell Park Memorial Institute discussed "Statistical Associations and Decision Making in Medicine". The main point was a caution against accepting associations between variables as causations; however, the study of these associations has resulted in notable advances in the field of medicine. Robert Mirsky of the Cornell Aeronautical Laboratories spoke on "Design and Decision in Research". He pointed out that there are three cases confronting the statistician—the case where there is just the right amount of data, the case in which there are incomplete data and the case of too much data. Each case requires special techniques if the best decision is to be made. Dr. Richard N. Schmidt of the Department of Statistics of the University of Buffalo spoke on "Some Managerial Aspects of the Decision-Making Process". He stressed the relation between the alpha and the beta error as far as executive decisions are concerned.

In the afternoon there was a panel discussion of "The Role of Statistics in Civic Planning". The moderator was Dr. Constantine Yeracaris, Assistant Professor of Sociology, University of Buffalo. Edward Fitzmorris, Director of Research, Courier-Express Co., emphasized the importance of census data in the decisions of local business men concerning employment, business growth and expansion. Henry Osborne, Traffic Advisor for the City of Buffalo, stressed the importance of sampling techniques in combination with census data for planning short and long range highway construction in and around the city. Dr. Austin McTique, Professor of Chemistry and Physics at Canisius College, and Director, Radiological Section, Erie County Office of Civil Defense, underlined the importance of current data on population concentrations, population movements and weather information to minimize the casualty rate in the event of an atomic attack.

At the annual business meeting held after the panel discussion the following officers were elected for the coming fiscal year:

President—ROBERT MIRSKY, Statistician, Cornell Aeronautical Laboratory, Inc.
Vice-President—DR. A. LILIENFELD, Statistician, Roswell Park Memorial Institute
Secretary—THOMAS SCHILLO, Acting Assistant Dean, School of Business Administration, University of Buffalo
Treasurer—PAUL R. SHEEHE, Quality Control Department, Pratt and Letchworth Co.

## Central Indiana

The new officers for 1955–56 are as follows:

President—EDGAR P. KING, Eli Lilly and Co.
Vice-President—VIRGIL L. ANDERSON, Statistical Laboratory, Purdue University
Secretary-Treasurer—GEORGE HORWICH, Department of Economics, Indiana University

## Chicago

The speaker at the luncheon meeting of May 19th was Frank Dickinson, Director of Medical Economic Research of the American Medical Association, who discussed "Trends in 'Life Expectancy', and a Look Ahead". At the dinner meeting held on May 26th L. W. Wallace, Conference Leader of the Top Management Seminar, Ordnance Management Engineering Training Program of the Ordnance Corps at the Rock Island Arsenal,

spoke on "Management Statistics". Mr. Wallace discussed the managerial problem involved in controlling operations for large scale production with maximum economy, and the applications of statistical data and analysis in internal control.

The annual dinner meeting devoted to election of officers and a forecast of the business outlook was held on June 13th. The speaker was Theodore A. Anderson, Manager of the Economic Studies Department, Ford Division, Ford Motor Company. In conjunction with this meeting Chapter members were asked to forecast four key economic indexes for October 1955 and April 1956—total personal income, total civilian employment, industrial production (FRB Index) and wholesale prices (BLS Index). The winner of last year's business outlook forecast was announced. He is James S. Myers, American Phenolic Corporation.

The following Officers were elected for 1955–56:

President—ADOLPH O. BERGER, U. S. Bureau of Labor Statistics

Vice-Presidents:

Dinner Meetings—MRS. ELIZABETH J. SLOTKIN, Division of Unemployment Compensation and Illinois State Employment Service

Midwest Conference—RUDOLPH T. ERICSON, Illinois Bell Telephone Co.

Luncheon Meetings—A. ARTHUR CHAROUS, Sears Roebuck & Co.

Membership—LAWRENCE A. STICKLER, R. R. Donnelly & Sons Co.

Treasurer—MRS. HARRIET S. SIEGEL, Federal Reserve Bank of Chicago

Secretary—HARLEY C. GATES, Commonwealth Edison Co.

Directors:

WILLARD D. ARANT, Swift & Co.

CHARLES L. AXELSON, U.S. Gypsum Co.

Dr. PHILIP M. HAUSER, University of Chicago

WESLEY D. MITCHELL, Peoples Gas Light & Coke Co.

ROBERT L. SEIDNER, Chicago American

## Cleveland

Wenzil K. Dolva, dean of the School of Business at Western Reserve University, was the featured speaker at the meeting on May 24th. His subject was "Management Training and Statistics". Dr. Dolva stressed the importance of statistics to management and to management training. He explained that management decisions must rely increasingly upon the work of statisticians, and illustrated this by describing a variety of potential applications in department store operation.

The following chapter officers were elected for the 1955–56 season:

President—Dr. FRED C. LEONE

Vice-President—Dr. ARTHUR E. MACE

Secretary-Treasurer—RUSSELL I. HALEY

The Chapter circulated to its members a questionnaire concerned both with their reaction to programs and with their opinions on statistical standards. On the latter the following choices were offered after the statement, "I believe technical and ethical standards should"—(1) Not be established, (2) Established as general guiding principles, (3) Established as comprehensive and fairly rigid sets of rules. The replies from 46 members were as follows:

| Response | No. of Replies | Per cent |
|---|---|---|
| Not be established | 4 | 9 |
| General guiding principles | 30 | 65 |
| Fairly rigid set of rules | 6 | 13 |
| Established as general guiding principles first, then as a fairly rigid set of rules | 3 | 6.5 |
| Other | 3 | 6.5 |
| | 46 | 100% |

## Columbus

The slate of new officers elected by the Columbus Chapter for the year 1955–56 is as follows:

President—MERRISS CORNELL

First Vice-President—MELVIN G. KOCH

Second Vice-President—Dr. ROBERT B. MINER

Secretary-Treasurer—Dr. MIKHAIL V. CONDOIDE

## Dayton

At the meeting held on May 26th the following officers were elected for 1955–56:

President—Dr. H. LEON HARTER

Vice-President—FLOYD E. SMITH

Secretary-Treasurer—JOHN L. DURR

## Denver

At the May 12th dinner meeting Shelby F. Harper, Director of the Legislative Council of the Colorado General Assembly and First Vice-President of the Denver Chapter, discussed "Statistics and Legislation on Capitol Hill". Mr. Harper described a survey made for the Legislative Council which resulted in large savings to the State.

The last dinner meeting of the year, held on June 23rd, combined a business session with a discussion by the Committee on Statistical Standards, led by George E. Bardwell, Chairman. The Committee discussed the history of and motivation for the statistical standards movement, ethical standards, and procedural and technical standards. The results of the April survey of Chapter members reaction to the question "Should ASA involve itself in the development of statistical standards?" was as follows:

| | Ethical Standards | | Procedural and Technical Standards | |
|---|---|---|---|---|
| | No. | Percent | No. | Percent |
| I am strongly in favor of developing | 33 | 55 | 36 | 60 |
| I am mildly in favor of developing | 19 | 31 | 15 | 25 |
| I am strongly opposed to developing | 0 | 0 | 1 | 2 |
| I am mildly opposed to developing | 1 | 2 | 2 | 3 |
| I am undecided | 6 | 10 | 5 | 8 |
| Not interested | 1 | 2 | 1 | 2 |
| Total members responding | 60 | 100% | 60 | 100% |
| Total membership of Chapter | 69 | | 69 | |

## Detroit

The new officials of the Detroit Chapter are as follows:

President—WALLACE W. GARDNER, School of Business Administration, University of Michigan

Vice-President—JAMES OLIVER, Detroit Board of Health

Secretary-Treasurer — SAMUEL BROWN, Chrysler Corporation

## Hawaii

At the dinner meeting held on June 3rd Clifford Davis, Chief of the Bureau of Research and Statistics of the Territorial Department of Labor and Industrial Relations, spoke on the background of the Honolulu Consumers' Price Index and some of the problems involved in its construction.

## University of Illinois

The following officers for the 1955–56 year were elected at the May meeting of the University of Illinois Chapter:

President—VINCENT I. WEST, Department of Agricultural Economics, University of Illinois

President-elect—LOUIS L. MCQUITTY, Department of Psychology, University of Illinois

Secretary—DAVID R. KRATHWOHL, Bureau of Educational Research, University of Illinois

## Los Angeles

A varied program was presented at the dinner meeting of May 26th. Gerson G. Levin, an account executive specializing in commodity markets with the firm of Merrill, Lynch, Pierce, Fenner & Beane, had as his subject, "Some Random Comments on Agricultural Statistics and the U. S. Department of Agriculture". Dr. Arthur T. Tait, Director of Research in the Office of the Superintendent of Schools of Riverside County, and Angus G. MacLean, Statistical Coordinator, California Test Bureau, both spoke of "Statistics in Educational and Psychological Testing Procedure." Before and after the meeting the new Comptograph was demonstrated by the Felt & Tarrant Co.

The June 30th dinner meeting heard Dr. John Caffrey on the subject "How to Win at Roulette 1, 2, 3—Infinity". Dr. Caffrey, who is a statistician in the Office of Los Angeles County Superintendent of Schools, has been interested for some years in the statistical aspects of roulette.

The Los Angeles Chapter joined the American Association for the Advancement of Science, Pacific Division, in their 36th annual meeting. The meeting was held at the California Institute of Technology in Pasadena from June 20th to 25th. The Los Angeles Chapter sponsored the sessions for one day, June 23rd, which was devoted to panels and statistical discussions.

## Madison

There has been considerable discussion of the subject of statistical standards, though no formal poll of members has been taken. Dr. Philip G. Fox, President of the Madison Chapter, has summarized these discussions. Members are agreed that substantially complete information on size of sample, conditions of bias, accuracy of observation, etc. must be available if a statistical study and its conclusions are to be put to serious use. There has been great improvement of governmental sources, but newspaper stories continue to be bad. A continuous program of education is necessary, and members agree that a system of standards for accuracy in recorded and published statistics would be useful in directing such education.

There is more controversy about establishing qualifications of skill and competence for statistical workers. Most of the Chapter members who are working in applied fields question any attempt to reserve the professional application of statistics either wholly or largely to mathematical statistics. Most of the members were also relatively uninterested in what was to them a new concept—the development of a code of ethics. Such codes lead to controversy about their meaning, and are illusions unless supported by the integrity of the individuals professing them.

## New York

The annual business meeting was held on May 19th. Allen D. Manvel, Chief of the Government's Division of the Census Bureau, who has been on loan to the Committee on Statistical Program for the City of New York as its Research Director, reviewed the work being done under the Committee's auspices. The following new officers were unanimously elected:

President—ROBERT E. JOHNSON

Secretary—JOHN M. FIRESTONE

Executive Council Member—CEDRIC WOLFE

## Philadelphia

New officers of the Philadelphia Chapter are:

President—HYMAN MENDUKE, Jefferson Medical College, Philadelphia

Vice-President—ALMARIN PHILLIPS, Wharton School, University of Pennsylvania

Secretary-Treasurer—INGRID HAHNE, Temple University

## Seattle

The Chapter conducted an opinion poll on the interest in developing standards, with particular reference to basic requirements for the publication of statistics. About half the Chapter members responded to a request to check the statement which comes closest to their view. The results, as reported by Dr. Grant I. Butterbaugh, President, were as follows:

| | No. of Replies |
|---|---|
| 1. This is a great forward step in the statistical world, and the Association should, by all means, develop standards for statistical practice | 1 |
| 2. There is some merit to this plan, and the Association should certainly give it further consideration | 12 |
| 3. I don't think the Association should involve itself in such matters | 0 |
| 4. I think the whole idea of statistical standards is unrealistic and the Association should not have anything to do with it | 0 |
| 5. I don't know enough about this problem to make an intelligent statement, but I would like to learn more about it | 0 |
| 6. I don't care | 0 |
| | 13 |

## St. Louis

A joint luncheon meeting with the St. Louis Chapter of the American Marketing Association was held on June 22nd. The subject of the meeting was a survey of the business expectations of 700 firms conducted jointly by the two chapters. Gordon Chapman of St. Louis University summarized the findings of the study, and William Kester of the Federal Reserve Bank discussed its implications.

## Washington

The session on May 23rd was a joint meeting of the Social Statistics Section of the American Statistical Association with the Washington Statistical Society. The subject was "Scientific and Professional Personnel—A National Crisis?" The Honorable Carl Hinshaw, Member of Congress from the 20th District of California, chaired the meeting, and the speakers were Dr. M. H. Trytten, Director, Office of Scientific Personnel, National Academy of Sciences, National Research Council, and Dr. Dael Wolfle, Administrative Secretary of the American Association for the Advancement of Science. Harold Goldstein, Assistant Chief of the Division of Manpower and Employment Statistics, Bureau of Labor Statistics, and J. F. Wellemeyer, American Council of Learned Societies, were discussants. Some of the conceptual and statistical aspects of the requirements for and supply of scientific and professional personnel in the United States were discussed, and leading problems in this area were identified.

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### Proceedings of the Business and Economic Statistics Section

The Papers Presented by the Business and Economic Statistics Section of the ASA at the 114th Annual Meeting, held in Montreal, Canada, September 10–13, 1954. Sessions were held on: Measuring the Effects of Social Payments on the Economy; The Business Outlook; The Canadian Balance of International Payments; Consumer Survey Data as a Method of Forecasting Economic Fluctuations; Economic Forecasting Techniques I; The Reliability and Meaning of Employment and Unemployment Statistics; Measuring the Effect of Pension Funds on the Economy; Stock Market Forecast; Recent Advances in Government Statistics—Panel; How Good Are Current Statistics for Following Economic Changes?; New Approaches to the Measurement of Saving and Investment; Economic Forecasting Techniques II; Statistics on Mobilization; Determinants of Productivity Levels. *Price:* $2.00 to members; $3.00 to others.

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by: Edgar M. Bisgyer,
Office Manager.

Sworn and subscribed before me this 9th day of September, 1955.

Mary P. Windsor,
Notary Public

(My commission expires April 14, 1959)